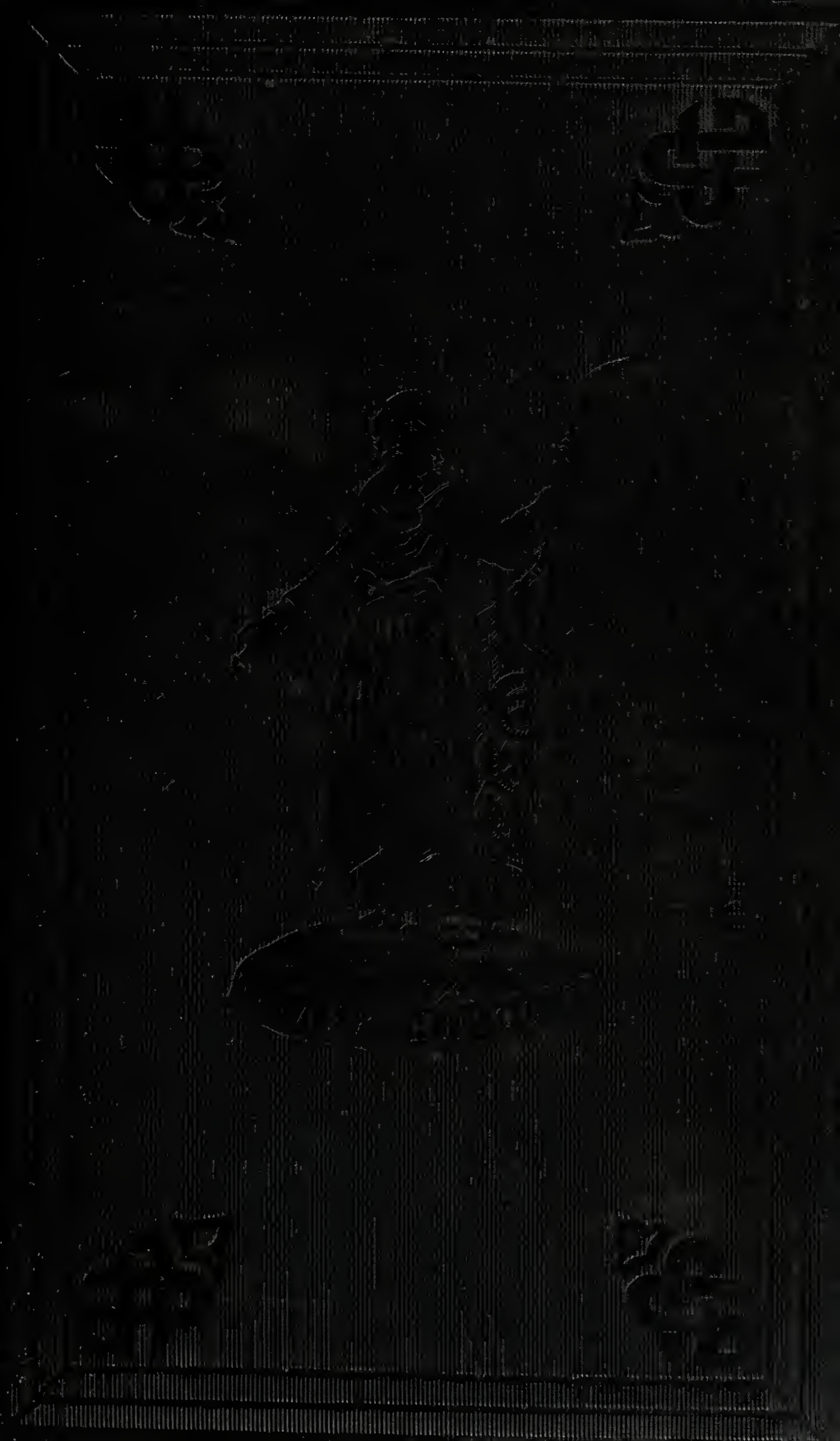

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HALF-YEARLY ABSTRACT

OF THE

MEDICAL SCIENCES.

JULY—DECEMBER.

1850.

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THE

HALF-YEARLY ABSTRACT

OF THE

MEDICAL SCIENCES:

BEING

A PRACTICAL AND ANALYTICAL DIGEST OF THE CONTENTS OF THE PRINCIPAL BRITISH AND CONTINENTAL MEDICAL WORKS PUBLISHED IN THE PRECEDING SIX MONTHS.

TOGETHER WITH

A SERIES OF CRITICAL REPORTS ON THE PROGRESS OF MEDICINE AND THE COLLATERAL SCIENCES DURING THE SAME PERIOD.

EDITED BY

W. H. RANKING, M.D. Cantab.

PHYSICIAN TO THE NORFOLK AND NORWICH HOSPITAL.

Apparatu nobis opus est, et rebus exquisitis undique et collectis, arcessitis, comportatis.
Cicero.

VOL. XII.

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HALF-YEARLY ABSTRACT

OF

THE MEDICAL SCIENCES,

&c. &c.

PART I.

PRACTICAL MEDICINE, PATHOLOGY, & THERAPEUTICS.

SECT. I.—GENERAL PATHOLOGY.

ART. 1.—*On various Inflammatory Affections incidental to the Scrofulous Diathesis.* By G. M. HUMPHRY, Esq., F.R.C.S.

(*Prov. Med. and Surg. Journal*, Dec. 1849.)

[IN a series of surgical lectures, remarkable for the great amount of learning, as well as practical information, which they exhibit, Mr. Humphry gives the following account of the modification impressed by the presence of the scrofulous cachexia upon inflammation of various tissues. He commences with the mucous membranes:]

The mucous membranes, in various parts of the body, are particularly subject to scrofulous inflammation, and that of the palate, nose, and throat, more so than any other. Some children are observed to suffer under continual cold, as their affection is called, with accumulation of mucus in the throat and nose, and a thick nasal voice. They snore a great deal, and breathe with some difficulty, keeping the mouth always open. The mucous membrane of the throat and nose is, in such cases, reddish, swollen, and covered with glairy mucus; perhaps its surface is excoriated, or in the worst cases it may be covered with superficial ulcers. In summer these children get better, but in winter the complaint returns. Sometimes the inflammation extends along the eustachian tube to the tympanum, causing deafness; at others the soft palate becomes affected, the mucous membrane lining it is swollen and ulcerated; the ulceration may be communicated to the bones, and clear away the hard palate and septum nasi,

causing sad deformity; or the lining membrane of the alveolar sockets becoming swollen, the teeth drop out, without evincing any sign of decay, and the alveoli themselves ulcerate and necrose.

Sometimes the affection commences, and is seated chiefly in the mucous membrane of the nose, causing swelling of it, with superficial ulceration; or the latter may extend more deeply, so as to perforate the septum, or destroy the spongy and ethmoid bones. The disease is now and then associated with polypus; that is to say, the chronic inflammation of the schneiderian membrane may lead to a polypose condition of it; but you must be careful not to mistake for a polypus the loose swollen membrane which, in consequence of its inflamed condition, hangs from the spongy bones into the nostril. The lining membrane of the lachrymal sac and canal is likely to become involved, causing obstruction to the tears and watering of the eye; and unless early attention be paid to this disease, we have to fear the complete occlusion of the canal, with the formation of lachrymal abscess and fistula, together with more or less caries of the adjacent bones. I may remark, that the disease of the bones here generally *follows* the inflammation of the mucous membrane, and the suppuration of the lachrymal sac, and may, in most instances, be prevented by a timely incision, and the use of the style.

The mucous membrane of the respiratory apparatus may also be affected, either alone or conjointly with that of the nose and palate. Scrofulous children very often suffer from chronic bronchitis, attended with cough, "stoppage at the chest," wheezing, and the expectoration of frothy mucus. This goes on for a long time, but has no necessary connection with tubercles; indeed, this affection commonly subsides as the child grows older, and the lungs resume their natural condition. It is well for you to beware of the nature of this scrofulous cough, and its independence of organic disease, otherwise you would be likely to give unnecessary alarm to the parents. It is a very troublesome complaint, and leads sometimes to dilatation of the smaller air tubes, and perhaps occasions permanent dyspnœa, but it is not often fatal. I have not observed that it has any very close connection with the emphysema which occurs in early life.

The scrofulous affection of the *larynx*, which takes place after puberty, is a more serious affair. In the early stages it is attended with cough, expectoration, huskiness and weakness in the voice, with inability to speak clearly; these symptoms are most felt early in the morning and in damp weather. In course of time the mucous membrane becomes thickened, indurated, and uneven on its surface, giving rise to roughness or hoarseness of the voice, with difficulty of expectoration, stridulous breathing, and liability to choking; also to tenderness of the larynx, so that slight pressure upon it causes cough. Numerous minute ulcers form upon the surface of the membrane, or larger ones extend deeply into it, and attack the cartilages. This disease is frequently associated with tubercles in the lungs. The local treatment of it consists in the application of astringent solutions—such as nitrate of silver—by means of a sponge passed into the throat, or, what I think more frequently gives relief, a seton placed near to the larynx.

The *tonsils* are often enlarged in scrofulous persons, with or without accompanying inflammation of the mucous membrane. The disease seems to consist in a simple hypertrophy of the follicular basis, of which they are composed, without much alteration of structure. Sometimes they contain yellowish white spots, scattered through their substance, which look more as if they proceeded from discoloration of the tissue than from any new deposit into it. The tonsils, thus enlarged, are painless, and do not interfere with deglutition unless they are inflamed; but they alter the voice, and render the patient liable to sore throats, which are lingering and very distressing, sometimes even alarming, from the difficulty of breathing, occasioned by a lodgement of mucus in the narrowed passage of the fauces. On this account we are required to treat them. I have, in some cases, diligently persevered for months in the application of nitrate of silver and iodine, but I cannot say that the result was very satisfactory. As the child grows up, and more particularly after the period of puberty, they often diminish in size spontaneously; but if they are the cause of much trouble, it is worth while to remove them, which is very easily done with a probe-pointed bistoury and a vulsellum, provided the patient is old enough to exercise a little self-control, and does not resist the operator. In children, the operation is very troublesome, and I am unwilling to resort to it on that account, and from the fear of bleeding. I once knew hemorrhage take place to rather an alarming extent, after the removal of a tonsil in a young man; but it ceased after a time, when he was kept quiet, with his head raised. In speaking of the removal of a tonsil—I mean that part of it which projects beyond the level of the pillars of the fauces—a portion of the gland is almost always left behind; and though I have heard the operation objected to on the ground that this remaining fragment is likely to enlarge, and have in consequence watched several cases for a considerable period, I have not known this to take place in any one.

The mucous membrane of the *urinary* and *genital* system is also very liable to inflammation in scrofulous persons. When affecting the bladder, it forms a very troublesome complaint, giving rise to symptoms resembling those of stone, viz. frequent and painful micturition, the pain being felt over the pubes, as well as at the extremity of the penis; sometimes there is incontinence. The urine generally contains a good deal of mucus or pus, and is sometimes tinged with blood; it is not that tenacious, white-of-egg-like, ropy mucus, adhering to the bottom of the vessel, which we are in the habit of seeing in common catarrhal inflammation of the bladder, but it forms a loose, white, milky sediment, and contains, perhaps, soft white flakes of lymph; it is commonly alkaline, and there may be particles of phosphate or carbonate of lime in it.

If the bladder be examined where such symptoms have existed during life, the mucous membrane is found to be vascular, thickened, soft, and velvety; it may be covered with minute flakes, or an entire coating of lymph. Adhering to the lymph may be seen a white powdery substance, composed of carbonate and phosphate of lime; sometimes the surface of the membrane is rough and excoriated, or the ulceration may have proceeded more deeply, and you may find

several small circular ulcers, proceeding from central points of gray deposit, like tubercles, and running together, so as to form larger ulcers; or there may be a more extensive deposit of soft gray substance in the structure of the mucous membrane, and in the submucous tissue, with ulceration commencing at many points, and forming a large, ragged, dirty surface, resembling much the corresponding disease in the mucous membrane of the palate and in the skin.

Not uncommonly the inflammation is found to have extended along the lining membrane of the ureters up to the kidneys, and a precisely similar disease is of no uncommon occurrence in the genital tubes and testicle; moreover, the two sets of organs are frequently affected in the same person. The convoluted series of tubes at the two ends of the vasa deferentia, viz. the vesiculæ seminales in the one direction, and the epididymis in the other, are generally attacked first, and the disease extends from them to the adjacent glands, to the prostate from the former, and to the body of the testicle from the latter.

As the disease advances the tubes become more distended, the scrofulous substance contained in them softens into a curdy fluid, with which some pus is intermixed; the lining membranes of the tubes become impregnated with the same substance, deposited in spots, or more generally infiltrated through their tissue. The membranes are in this manner destroyed, and the natural structure of the part is lost by the fusion of the tubes into cavities, which, enlarged by the increasing accumulations in their interior, project from the epididymis into the loose tissue of the scrotum, surround the testicle, and at last burst through the skin, discharging their contents, and leaving sinuses. The sinuses thus made often remain open for months and years, forming channels of communication between the interior of the epididymis and the surface of the body. They discharge a thin fluid, in which spermatozoa may be sometimes found.

It may be observed that the disease consists not simply in the accumulation of scrofulous substance in the tubes, but that the lining membrane of those tubes also undergoes a change.

Scrofulous disease of the testicle is of common occurrence. Sometimes it occurs as the remnant of acute epididymitis, but more frequently it begins insidiously, and proceeds with little or no pain. A patient applies in consequence of enlargement of his testicle, which is attended with some uneasiness in the part, and some aching in the loins. You find the epididymis enlarged, with soft swellings, perhaps, projecting from it; the vas deferens may be also large and knotty. At first we can distinguish that the body of the testicle is healthy, but it subsequently ceases to be so, or it becomes so lost in the swollen epididymis that we can gain no information respecting it. We should not, in such a case, forget to examine the other testicle, the vesiculæ seminales, and the prostate, and to inquire into the condition of the urine and the state of the bladder.

Scrofulous affections of the urinary and genital system, particularly of the testicle, are by no means more easy to cure than the other forms of scrofula. In some of those cases we have tried a variety of remedies without any apparent advantage. In truth, it is generally accompanied

by fewer indications of treatment than most other scrofulous affections, and, though like them, associated with want of vigour of the nutritive functions, it is, I think, less commonly accompanied by the symptoms of disorder of the digestive system. You will find it a rule, with exceptions no doubt, that the scrofulous cases which are devoid of that accompaniment, are the most difficult to cure, because they are the most directly and completely dependent upon the constitutional defect. The measures most conducive to the general health must be tried, such as simple and nutritious diet, fresh air, and tonic medicines. The application of a solution or ointment of iodine, so as to produce slight irritation of the scrotum, may do some good. The internal administration of iodine and cod-liver oil are also sometimes beneficial. There is no doubt that many of these cases get well as the patients become stronger; we may therefore encourage them with the prospect of a cure, though we are unable by any direct means to contribute very greatly to it.

The prospect of acute inflammation degenerating into this tedious and destructive chronic disease, will make us especially anxious to arrest the disorder quickly when called upon to treat the common "hernia humoralis" in persons of delicate scrofulous habit. We shall be careful that no traces of it are allowed to linger behind, especially as in the debilitated state to which the patient is reduced by an acute attack, the organ is often slow to recover its natural condition, and if the antiphlogistic treatment, with confinement to bed, be continued too long, the chronic disorder may not unlikely be engendered.

We are sometimes called upon to consider the question of the removal of the organ. It is seldom imperatively necessary to do this; but when the disease has so destroyed the natural structure of the organ as to render the restoration of its function improbable, it is advisable to remove that which has become a mere burthen and source of annoyance, especially if the patient be confined to bed in consequence of it, and his strength is being weakened by the successive formation and bursting of abscesses, and by the discharge from them. I do not think that the existence of the disease in other parts of the genital system is of itself sufficient to preclude an operation, because in the cases which I have seen, the removal of the one testicle has not been followed by an increase of the disease in the other, but, on the contrary, the remaining organ has appeared to fare rather better, and to recover more quickly. The experience of one person, however, cannot furnish sufficient data for the decision of such a point as this.

There is one other circumstance which I must mention before dismissing this subject of the scrofulous disease of the testicle; and that is, its frequent association with phthisis pulmonalis. This has happened in about one half of the cases I have seen.

In the *scrofulous disease of the bladder*, especially when the urine is alkaline, small doses of the mineral acids, given in bitter infusions, are often productive of benefit; also iodine, in the form of the iodide of potassium, and the preparations of steel. It is very important to rectify any disorder of the digestive organs that may accompany it, for all the inflammatory affections of the bladder are much influenced by the state of the stomach, and care in diet must be strictly enforced.

If, in spite of these precautions and remedies, the disease still lingers, or shows a disposition to increase or spread to other parts, you had better adopt some permanent counter-irritation, such as an open blister, or still better, a seton above the pubes or in the loins.

The *genital organs in the female* are also liable to scrofulous inflammation. There may be deposit of lymph and abscess in the ovary, but that is not common. The fallopian tubes are more frequently the seat of this disease. They increase in size towards their free extremities, which were adherent to the surrounding parts. The mucous membrane lining them is much swollen, and of a yellowish-white colour. The tubes also contain some soft scrofulous matter. The uterus itself is healthy, though of small size. This disease of the Fallopian tubes would be likely to occasion sterility.

The scrofulous disease of the *synovial membrane* is the most common cause of white swelling of a joint. In the early stage the membrane is merely thickened, has a somewhat granular appearance, and is semi-opaque, of pale colour, with a brownish or reddish tinge. Soon it is found to be mottled with white spots of various sizes, scattered more or less thickly through it; sometimes they look like mere minute specks, at others they consist of a discoloration of considerable portions of the thickened membrane. As I have before said, these spots seem to depend rather upon a change taking place in the structure of the already diseased membrane than upon any fresh deposit into it. However this may be, they frequently soften into a white curdy fluid, become connected with one another in the same manner as small abscesses do in other parts, and either burst externally or find their way into the cavity of the joint.

I think it is very important the patient should not be confined to bed or to the house, more than is absolutely necessary ; for I am quite certain that the local disease is often much aggravated in consequence of the injury to the health occasioned by close confinement. At the same time it is important that the joint should be kept quiet when it is at all tender, painful, or uneasy after exertion. To secure this it is a good plan to fix and support the joint by means of bandages, plasters, and leather or gutta percha splints, while the patient is allowed to go out upon crutches. The tincture or ointment of iodine applied every night and morning, so as to produce some irritation of the skin, but not sufficient to prevent the limb being bandaged during the day, is one of the best local applications. It may be alternated with other stimulating liniments, with blisters, or, in slight cases, with the cold douche. When abscesses form I generally allow them to burst, because their contents are thus discharged more freely, and the slight loss of skin occasioned thereby is not very important.

I have tried the cod-liver oil in many of these cases,—in a few with decided advantage, but in many instances it seemed to do no good. I cannot say that I have found iodine administered internally of much service in this disease.

If you have studied the pathology of *tubercles* at all, you cannot have failed to remark their close apparent resemblance to those little deposits of ill-organised lymph I have been speaking about, which form a prominent feature in scrofulous disease, occasioning so much de-

struction of tissue, and giving rise to the formation of ulcers, in consequence of the softening and suppuration they have a tendency to undergo. It is probable, I think, that the relation between tubercles and these deposits of scrofulous lymph is not one of mere external resemblance, but that they are, in their real nature and essence, very closely allied.

A tubercle consists of a small mass of heterogenous substance interstitially placed with regard to the tissues in which it is imbedded. It does not increase to any great size, but it softens and suppurates, destroying, at the same time, the tissue involved with it, and so forms a cavity. The contents of this cavity, increasing like those of an abscess formed in any other manner, occasion absorption or ulceration of the structures intervening between them and the surface, and are discharged. About the time that the softening commences, inflammation is set up, and lymph effused in the circumference of the tubercle, walling it in, and forming the lining of the cavity. The destructive effects of tubercles depend not upon the ability of each one to attain to a great size, and, like a cancerous growth, to go on spreading at one part while it is softening at another, but upon their disposition to occur in considerable numbers, all of them running the same course, and forming cavities, which coalesce into larger ones, and so make great havoc, sometimes hollowing out, as in this specimen, the entire substance of the lung. An individual tubercle, when it has softened and burst, has done its worst; the cavity left by it is lined with the common lympth of inflammation, which would contract and cicatrize, and there would be an end of the matter, did not other tubercles exist in the neighbourhood undergoing the same changes, bursting into this cavity, and continuing the work which the first had begun.

When I suggest that tubercles are nearly related to the scrofulous deposits which I have described to you in this and the former lectures, I do not mean to intimate that they are dependent entirely upon inflammation, or that they consist of masses of lymph strictly so called, for there is often, indeed commonly, no evidence of their being preceded or accompanied in their first stages by any inflammation, and it is to be remembered, that lymph is effused fibrin altered by the inflammatory process; but I mean, that they probably consist of some of the imperfectly elaborated components of the blood, the albumen or the fibrin, changed, it may be, in some manner, and effused among the tissues. These remarks apply also in some measure to the scrofulous deposits, which are often preceded by no signs of inflammation, and which sometimes seem rather to excite than to depend upon that process.

Both in the scrofulous and tuberculous subject, particularly the latter, when genuine acute inflammation is induced, the effused lymph partakes more nearly of its ordinary or healthy characters. Sometimes, however, even then, it has the constitutional defect impressed upon it, giving rise to what is called tuberculous and scrofulous infiltration, which is not always confined to small spots and masses, but may extend through a considerable space.

The degree in which tubercles differ from the ordinary scrofulous deposits, varies according to the constitution and age of the patient.

In the young, light-complexioned, delicate patient, who presents the signs of the scrofulous diathesis most strongly, the tubercles are from the first large, of yellowish-white colour, and cheesy consistence, closely resembling, in short, the common scrofulous deposits; so closely, that the one can scarcely be distinguished from the other. They are attended with inflammation in an early stage, soften quickly, and run their course in a comparatively short period. In older patients, and in the dark-haired, thin, active persons, who exhibit fewer traces of a scrofulous habit, the tubercles are at first much smaller and harder, forming little semi-opaque horny grains, which easily escape notice; these have been called miliary tubercles. They are slower in their changes, remaining sometimes quiescent, or advancing but little for months. In their progress they increase a little in size, become more opaque, of white or yellowish-white colour, so as to resemble those last described, and then gradually soften and form cavities. These miliary tubercles have been thought to form the early stage of those first mentioned, and so, no doubt, they often do, but the large white tubercles are very frequently found presenting their own distinctive characters from their first commencement in the class of persons I have mentioned.

The softening of tubercles, though generally accompanied by some inflammation and deposition of lymph in their circumference, is in all probability independent of that inflammation, or rather may be regarded as its exciting cause. It seems to depend upon some quality inherent to the tubercles themselves; often it begins in the centre, and forms a cavity there, so that when the tubercle is opened, it looks like the divided end of a tube. This appearance has given rise to the mistaken notion entertained by Carswell and some other pathologists, that tubercles of the lungs consist in a concentric deposit within the minute bronchial tubes.

Tubercles, and as I have just said, the small gray miliary tubercles particularly, sometimes fall into a quiescent state, become dry, and the surrounding pulmonary tissue loses its increased vascularity. Even after softening has commenced, they sometimes retrograde, drying up, and undergoing calcareous transformation, while the lymph effused into the surrounding pulmonary tissue contracts upon them, and gives rise to a puckered appearance, like a cicatrix. We often find in old persons these traces of the tuberculous disease of early life. Whether they are ever absorbed in the early stages, and disappear entirely, so as to be quite cured, is uncertain, though it is probable that they do so.

The lungs are more frequently the seat of tubercles than any other organ of the body, and the distinctive characters of the morbid product are most clearly marked in them. On the peritoneum also, they are of common occurrence, both the small, hard, gray tubercles, and especially the large, soft, white ones, which have a near resemblance to scrofulous deposit, and which, as I have just intimated, seem to form the connecting link between tubercle and scrofula. In the liver, spleen, and brain, tubercles are less common, and approximate still more closely to scrofulous masses; and in the absorbent glands, the skin, and the bones, the deposit which I have described as the result of

scrofulous inflammation, is by many pathologists ranked under the head of tubercle.

I do not think that persons who suffer from scrofula are much more liable to tuberculous phthisis than others. This is scarcely to be considered an argument against the supposition of the two diseases being very nearly allied, and is no more remarkable than the fact that each of them is so frequently confined to a particular organ, or a particular class of tissues. Tubercles are often found only in the lungs, and scrofulous affections are very commonly limited either to the absorbent glands, the skin, or the bones, in individual cases. Even if tubercle and scrofula be *identical*, each deriving its peculiarities from some quality of the organ affected, it is no wonder that the two are not found to co-exist more frequently.

I have already mentioned that the scrofulous disease of the testicle is very often associated with tubercles in the lungs, and I have observed that the same is true of scrofulous abscesses on the thorax connected with disease of the ribs. There are patients at the hospital at the present time whose cases illustrate the truth of this remark. It is also a general impression, and, I think, a well-founded one, that patients who, in early life, were troubled with scrofulous affections, are, after the age of puberty, when the disease of their childhood has passed away, very liable to fall victims to tuberculous disorganisation of one or other of the internal organs.

Art. 2.—*On the Nature and Treatment of Erysipelas.*

By Albert Walsh, M.D. F.R.C.S.I.

(*Dublin Quarterly Journal of Medicine*, Aug. 1850.)

In a long essay on the constitutional origin of erysipelas, the author details several cases of this disease in its idiopathic and traumatic forms, after which he states his belief that erysipelas is "a peculiar kind of fever or constitutional irritation producing an inflammation of the skin." This opinion he holds for the following reasons:

1. The disease, like smallpox, measles, &c., is subject to metastasis. 2. There is always the same train of symptoms in each case. 3. A minute dose of tartar emetic, which would have no effect in other inflammations, generally causes severe vomiting in this. 4. In mild cases the disease will wear itself out; the part where the eruption first appeared getting well, while the disease spreads to the sound parts; and this continues until the system is completely rid of the poison. 5. It often recurs in the same patient at stated intervals. 6. It is most probably propagated by contagion.

He next proceeds to speak of a plan of treatment which he has found the most efficacious, viz. that of tartar emetic.

Of this he says: "In my opinion there is no form of the disease which should not be in the first instance attacked with tartar emetic, whether there be high inflammatory fever, low fever, vomiting or purging; under all and every circumstance we shall find that the disease yields

to this remedy. It is not, however, to be given in large doses, but in very small doses, as recommended by Desault.

"Tartar emetic seems to act specifically in erysipelas; because it in most cases vomits and purges after the second dose. I have ordered this medicine in the same proportions in other diseases, as in phlegmonous inflammations, without the least perceptible effect on the patient."

Speaking of the proper time for giving tonics, the author observes that: "As soon as we find the erysipelatous surface to be getting a yellow tinge, the tongue cleaning, the pulse becoming more frequent, the proper time has arrived to commence with tonics, and omit the tartar emetic. In some cases we may have to commence the tonics while we are giving the tartar emetic, and in others where there are low typhoid symptoms, we shall have to give wine and tonics from the commencement."

The author next speaks of the local treatment, comprising the application of leeches, making incisions according to Mr. Hutchinson's plan, creosote, sulphate of iron, as recommended by Velpeau, nitrate of silver, linear blisters, and mercurial ointment. As a general rule, he disapproves of any application beyond that of flour or poultices.

The paper concludes with the subjoined summary:

1. Erysipelas is a constitutional disease depending on a morbid state of blood; and the eruption and fever are the means adopted by nature to get rid of the poison.
2. For practical purposes, it is only necessary to divide the disease into idiopathic and traumatic.
3. Tartar emetic seems to act specifically on erysipelas.
4. As soon as tartar emetic has acted sufficiently, tonics may be given.
5. Local applications are unnecessary or injurious.
6. Incisions are only necessary in the suppurative stage, which will often be prevented by the antimonial treatment.

Art. 3.—*Local Treatment of Erysipelas by Collodion.*

[The following is extracted from the valuable Hospital Reports published from time to time in our contemporary, the 'Lancet.']

Mr. Luke was induced to make use of this liquid in the manner described, on the suggestion of Mr. Bird, the author of the Jacksonian Essay on Erysipelas, which lately gained the prize; and has had occasion to be highly satisfied with the results he has obtained both in hospital and private practice. Several cases of erysipelas have been thus treated in Mr. Luke's wards; it will, however, be sufficient to report one of these, furnished by Mr. Peete, to show how fully the application answers the purpose.

Amelia S—, æt. 40, was admitted under the care of Mr. Luke, June 1, 1850, with acute inflammation of the neck, which, a week after admission, ended in abscess. This was opened, a large quantity of pus evacuated, and the patient went on very favorably for a week, when an inflammation of an erysipelatous character was observed to

have invaded the upper part of the back. It extended from the neck to the first lumbar vertebra, including both scapulæ, and the inflammation had a distinctly defined margin.

Collodion was immediately applied by means of the finger to the whole surface, and to some little distance beyond it. The skin was much puckered by this measure, and the patient complained of the constringent effects of the collodion. Mr. Luke ordered the patient to have an allowance of wine, as she was rather depressed. (We may here state that most cases of erysipelas are treated in this hospital by large doses of stimulants, as brandy, wine, &c.; and that this line of practice is generally followed by very favorable results. The type of the erysipelatous affection in charitable institutions is commonly of a very debilitated kind, and this fact would partially explain the necessity of supporting the patients by the stimulants just mentioned.)

In the case before us, the collodion was repeated the following day; and on the third, the erysipelas had entirely subsided in the part where it had first made its appearance. It, however, broke out afresh about the nose, lips, and eyelids; and a little lower down it extended from the edge of the wound made by the lancet to the whole chest, implicating both mammæ. Patient complained of violent pain in her head; her eyelids were closed, and she had delirium at intervals, particularly at night. The collodion was applied, in the manner described above, to the whole chest and face; the hair was removed, and the head kept cool with a spirit lotion. These topical measures, combined with the administration of stimulants, proved extremely beneficial, and the patient improved rapidly. The collodion was applied daily for a week, and on the 24th of June, ten days after the first onset of the erysipelas, the inflammation had quite disappeared, and the patient was declared convalescent.

A male patient was lately treated in the same manner for erysipelas, and the successful results were very quickly obtained. Mr. Luke has used the collodion very frequently in private practice: in one instance it was placed upon a young lady's face, excepting a small portion of the cheek, from which it peeled off. This part soon afterwards began to look redder, and projected beyond the surface of the surrounding skin, being, in some degree herniated. This circumstance showed very clearly how great must have been the pressure which was exercised by the fluid. Thus it would appear that the collodion fulfils two indications of an important kind: it protects the inflamed surface from the contact of the air, and it contributes, by the pressure it effects, in driving the blood from the distended capillaries.

Lancet.

Art. 4.—*On a Peculiar Form of Delirium in Scarlet Fever.* By Cathcart Lees, M.B.

(*Dublin Medical Press*, July 3, 1850.)

The author observes that every practical physician is well aware, that the complications occurring in the course of scarlet fever (as well as in other eruptive fevers), constitute the most important points in

its pathology and treatment; that in this, as in other specific infectious diseases, the complications should be considered (not as independent morbid conditions, requiring the treatment usually adopted for such diseases when arising in a person otherwise healthy), but as secondary to, and depending on, the general poisonous miasm pervading the system, and should never be viewed in the same light as similar symptoms when arising independently of a specific infection. These considerations are, he remarks, particularly important with reference to the affections of the brain and nervous system occurring in the course of scarlet fever, but which are disposed of in most systematic works under the head of "Convulsions and Coma." There is, however, one form of delirium he has met with in scarlet fever which he is not aware has been noticed by writers, and which he considers to be of very great importance, particularly with reference to treatment. This is a very dangerous form of delirium resembling, in many points, that form termed delirium tremens, but which may occur in persons labouring under scarlet fever, previously temperate in their habits, or at least not addicted to intemperence, though accustomed to live freely. He has never met with an instance of it in hospital practice, and he thinks it must be of rare occurrence, as Dr. Copland does not allude to it in his 'Dictionary of Practical Medicine.' Dr. H. Kennedy of this city, in his excellent little work on 'Scarlatina,' had some idea of this form of the disease, as he states that "he considers the delirium in scarlet fever as purely nervous, and even when patients died with well-marked head symptoms, no morbid appearance was found in the brain to account for them."

Dr. Gregory, of London, in his 'Lectures on Eruptive Fevers,' probably alludes to this form of the disease when he says: "Never, therefore, be thrown off your guard by the apparent mildness of the symptoms for the first two days. The third is the day of danger, when the rash begins to subside, and when the poison, still active and driven from the exterior, vents its fury on some internal organ. Delirium, often of a fierce and unrestrainable kind, seizes the adult. I have seen two patients in this disease in the most raging frenzy, jumping out of bed naked, and dying on the floor of the chamber." But he does not appear to be acquainted with the line of treatment which is necessary for this form of delirium, and which the author thinks was well exemplified in the following case:

Mr. D. —, a strong, healthy young man, æt. 22, of temperate habits, had felt unwell for the last few days with a feverish cold, but continued going about till two days ago, when he became suddenly weak, fainted, and has since kept his bed, suffering from slight diarrhœa; out this morning (Dec. 3d), he awoke with sore throat, and a mottled rash indistinctly out over the body. I was now requested to see him in consultation with Mr. Nicholls, his apothecary, and found him as above described. His throat very vascular; tongue furred; nose very sore; pulse small, 88; he was very restless. I ordered him the carbonate of ammonia in effervescence, and chicken broth.

Dec. 4th.—Passed a very restless night, constantly raving, and no sleep; he was delirious all day, wanting to get out of bed; his breathing is very heavy; face appears swelled; bowels confined.

℞ Pil. hydrarg., gr. iij ;
Pil. rhæi comp., gr. v, in pil. ij.

5th.—No sleep ; raving all night, fancying that people were in his room ; the eruption has disappeared from his body, but is still on his legs ; pulse very feeble, 80 ; he answers questions rationally, but wanders away on other subjects ; constantly talking and watching every one round him. He got about half a pint of sherry during the day in whey, and as he was not inclined to sleep,—

℞ Guttæ nigræ, gut. x, h. s.

6th.—Was very noisy and excited all the night ; no sleep ; pulse 100, with occasional intermissions, but of fair strength. He was now allowed to have mulled claret ; but as he still continued much excited, and without any tendency to sleep, he was ordered at 10 p.m.,—

℞ Guttæ nigræ gut., xvi, statim,

and to have ten drops every second hour if sleep be not induced. He took three doses, then fell asleep, and slept on during most of the day.

7th.—Passed a very quiet night ; slept well, and is now quite sensible ; pulse 64 ; urine depositing lithates copiously.

[The patient now convalesced rapidly, and recovered perfectly. This case, in a practical point of view, is considered important, as it shows the great advantage of opium in tranquillizing the nervous system and procuring sleep. The author is not aware that this method of treatment has been recommended by any author ; but he may be assured, that several practical physicians are now alive to the importance of regarding delirium of all kinds as far more frequently the result of nervine irritation, than that bugbear of the routine practitioner,—inflammation.

Those who are sceptical on this point, are referred to Dr. B. Todd's admirable lectures on delirium and coma, extracts from which appear in the present volume.]

Art. 5.—*On the Treatment of Scarlatina by Inunction.* By Dr. Schneeman.

(*London Journal of Medicine*, Sept. 1850.)

[In Vol. IX, p. 14, of our "Abstract," we briefly mentioned this treatment on the authority of Mauthner, a physician of high repute in Vienna. We here present our readers with a more detailed account ; premising, that however puerile this treatment may appear, *primâ facie*, its harmlessness may entitle it to a trial where a more hazardous proposition might reasonably be rejected. The following account is abridged from the 'Lancet,' Sept. 15, 1849.]

Description of the Treatment.—As soon as we are certain as to the nature of the illness, the patient must be rubbed, every morning and evening, over the whole body, with a piece of bacon, in such a manner that, with the exception of the face (?) and hairy scalp, a covering of fat is everywhere applied. In order to make this rubbing-in somewhat easier, it is best to take a piece of bacon of the size of the hand,

choosing a part still armed with the rind, that we may have a firmer grasp. On the soft side of this piece, slits are to be made in various directions, in order to allow the oozing out of the fat; and this is still further promoted by placing the bacon, for some time previously to using it, near the stove, in the oven, or on the hob. But the fat must be allowed to cool before being used.

The rubbing must be so performed, that the skin may be regularly, but not too quickly, saturated with fat. During the process, only that part being rubbed is to be uncovered, or the whole can be done under the bedclothes; but this precaution is unnecessary. Although this plan, from the mess it makes, is not calculated to find favour, as it dirties bed and linen, as well as the persons of the children, yet the first few days yield results which make all this forgotten, and inspire the mothers with enthusiasm. With rapidity the most painful symptoms of the disease are allayed; quiet, sleep, appetite, and good humour return. Other things, however, are necessary besides infriction with fat; but still the most important share of the merit may be imputed to this treatment. The truth of this will appear from a citation of the first results which follow:

1. The improbability, I might say impossibility, of the patient getting cold. Were this the sole benefit of the inunction, it would be great.

2. The dry brittleness of the skin, and the tormenting itching, are not only materially alleviated, but, for the most part, fully put a stop to. Hence children generally like the rubbing-in, and often ask for a repetition of it before the time is come.

3. The influence on the physiological functions of the skin is still more important. During the coming on of scarlet fever, the skin becomes diseased, in consequence of which it dies off; and, until a new covering is prepared for the surface, the functions of the skin are ill performed, or, during the desquamation, probably not performed at all. To appreciate the importance of the imperceptible functions of the skin, merely mechanically viewing the matter, I refer to the experiments of Seguin, which fix the quantity of matter thrown off from the outer skin at eleven grains per minute in a grown person, and therefore more than two pounds per day. What efforts it must cost the organism to lead so large a quantity into other paths, in order to throw it off when the skin is incapable of doing so! To give a striking proof of the bad influence which the interrupted functions of the skin produce on the healthy activity of relative, even of distant, organs, I may cite the fact, that death is always the result where more than one half of the skin has been destroyed by fire or boiling liquid. A similar destruction of the skin ensues in scarlet fever, with this difference, that it takes place gradually, and thereby the organism is better enabled, by employing all the activity of the body, to find aid against the mischief which, to the injury of the patient, must result from the cessation of the functions of the skin.

4. The oxidation of the blood is thus considerably promoted, the interrupting of which is the cause of such serious phenomena. As the disease of the throat is not improbably, in great part, due to the interruption of the functions of the skin and lungs, it must naturally dis-

appear, or not present itself, where these are continued in integrity; and such is found, in practice, to be the case.

5. Owing to the fatty covering, the skin is kept moist, and the cuticle cannot be driven about the room by currents of air; and thus *one fertile source of infection is kept closed up*, it being well known that infection is most easily communicated at the period of desquamation. The danger of infection, under any circumstances, is materially lessened with the disappearance of the eruption from the skin, inasmuch as the process of generating infectious material is interrupted by restoring the skin to its normal state.

6. By shortening the period of desquamation, and protecting the patient against the sequela of the disease, the duration of the treatment can be shortened to a period of from six to ten days.

7. The remedy is (cheap,) harmless, practical, and is perhaps never counter-indicated. The linen must not be too frequently changed, as a clean shirt takes up more of the fatty matter than one already saturated, and hence the skin is sooner deprived of its fatty covering. The rubbing-in is to be kept up twice a day for three weeks, and once a day during the fourth. The patient is, after this, to be daily washed with cool water and soap, and then only is the warm-bath to be commenced. This process does not interfere with the natural course of the malady, and expose the individual to second and third attacks. In severe cases, the remedy may be repeated three or four times within the twenty-four hours. The main point is, to keep the skin *always* cool and moist; and here, even with all possible precaution, the skin will sometimes come off in certain places. The practitioner will do well to fix the exact hours at which the rubbing-in is to take place; it will then most probably be better and more regularly performed.

Other points, which are also important enough, now remain to be noticed:

8. *Temperature.*—Experience proves that it requires no great daring to keep the patient *cold* instead of hot. Cold washing is *not* to be employed, as it promotes desquamation. Cool air seems to have a bracing influence on the system, and a soothing one on the respiration; and all danger is avoided by the fatty covering. The temperature of the bedroom should never be above 13° R. The idea of throwing back the eruption by mere cold air is an error. Great heat is much more likely than cold to throw in the eruption. In fact, the fatal cases of this kind are principally those where, through keeping the patient too hot, the cerebral affection has been brought on; this has given rise to paralysis, which appears sooner in the skin than in other parts, and thus to the withdrawal of the eruption,—for the skin dies sooner than other parts, as shown in collapse, where mustard poultices do not act as in other states.

9. *Bed.*—The patient should not remain in bed any longer than is absolutely necessary. As soon as the fever, headache, and a desire to remain in bed are gone, he may quit it, for in bed the skin is between two fires,* and the functions of the body do not go on so well as in

* Here it will be as well to state, that in Germany a feather-bed is frequently substituted for bed-clothes.

moving about. Hence, even when the patient must lie down an hour or two daily, he should still go about the rest of the time.

10. *Diet.*—The diet should be light, but there must be no starvation, and as rapid a return as possible to the usual food.

11. *Washing.*—Although it brings on desquamation, it will be as well to let the patient occasionally wash his hands and face with water and soap. It reconciles him to the dirt attendant on the rubbing-in.

12.—If *constipation* ensue, it must only be combated with medicines; when, at the end of forty-eight hours, it makes no semblance of disappearance, then a clyster of poppy oil is the best remedy.

The author enters his protest against a partial employment of his remedies.

Complications require a modification of the system.—1. *Severe cerebral symptoms at the commencement.*—The above treatment can only be applied, where time is allowed for the development of the restorative process. Occasionally the case is accompanied at its very outset by severe cerebral affection, and convulsions. Here bleeding may be employed, and, if necessary, unhesitatingly repeated. To support this view, Dr. Schneemann instances the authority of Armstrong, Bernd, Stieglitz, Hammond, Hingeston, &c. Venesection is, accordingly, the sheet anchor. The other remedies are:—The application of concentrated cold to the head; and the best form for this is ice. The cold dash is often more hurtful than useful, on account of the serious reaction which follows it, and exposes the patient more to the dangers of an apoplectic attack, although its results for the minute are often very flattering. *At the end of every two hours the bladder of ice should be removed*, in order that the uninterrupted effect of the cold may not weaken too much the tone of the vessels of the brain. Warm mustard plasters to the shins are a most valuable remedy. Internal remedies are generally of little use where the above given remedies fail; the only one of any importance is the carbonate of ammonia. Mercury is of little value, except just to open the bowels; for its specific action never comes into full play till the system is throwing off the affection. There are, however, much better purgatives than calomel; the saline, for instance. Emetics ought not to be tried in cases complicated with cerebral affection; in others they may. The aconite failed in the author's hands, both in tincture and solution. With regard to the treatment by leeches and ammonia, so many writers have already pointed out its good results, that the author can safely recommend it, but with the proviso that in urgent cases bleeding be substituted for leeches.

2. *The Affection of the Throat.—Primary.* As this is but a link in the whole, so must the measures taken for its removal be such as will remedy the general affection. *Secondary.* For this, the rubbing-in, as it acts by prophylaxis, is the best possible remedy; but where this has not been brought into use, or where, from keeping the patient too warm, desquamation has come on, and the secondary sore-throat has set in, the best remedy is the use of emetics. They not only remove the tough glazy slime, but excite the secretions and excretions to more normal disposition, and this is especially the case if the disorder have a gastric character. Many, by confounding the employ-

ment of emetics in the early and latter stages, have brought them into discredit. For the swelling of the tonsils, an excellent remedy, is a solution of nitrate of silver (twenty grains to an ounce of water), with which they and the soft palate are to be painted; but so many varieties present themselves in these secondary attacks following on scarlet fever, that no general rules can be laid down. Here everything depends on the discrimination and judgment of the practitioner.

Prophylaxis.—Warm clothing, separation from school, and, above all, light diet, are the best preventives. That the younger children, as more predisposed than the others, must be more carefully separated from the sphere of infection, is doubtful practice. Not only are many children never infected, who, however, by adopting this system, require to be as carefully secluded as the others, thus causing great inconvenience; *but the mildening influence and actual advantage of a gradual accustoming to the infection are thereby lost, and consequently the attack, when it comes, is so much the more severe.* The free communication with the patient is good, in order that constant exposure may, as in the case of physicians and nurses, blunt and wear out the disposition to the disease; for as it now is, children are separated from the patient during the first period, which is the mildest, and exposed to contact with him during the process of desquamation, which is the source of the most dangerous infection. Many preservatives have been vaunted against this malady during its epidemic appearance; of these, however, the only one apparently deserving of much credit is the belladonna. Its action appears to be, "by altering the relations of the nervous system, to diminish the disposition to the disease." The author's prescription is—Take of extract of belladonna one to two grains; distilled water, one ounce. Mix. Give to each child, morning and evening, as many drops as it has years, and continue to do so at least fourteen days. But not to confine himself to his own testimony, Dr. Schneemann gives that of Jördens, Ettmuller, Hedenus, Gumpert, Hufeland, Martius, Pormey, Behr, Benedix, Thaer, &c., who have testified to the value of Belladonna; and though he admits that as many opponents might be found, he thinks it scarcely credible that all the former had deceived themselves. In certain sections of the circle of Bayeux, Dr. Feron preserved from scarlet fever all the children who had not been attacked before he commenced operations. In 400 cases near Valenciennes, treated with belladonna, not one person was attacked.—(*Vide* Report.)

Art. 6.—*Purulent Vaginal Discharge in Scarlatina.*

Dr. Barnes has called attention to the occasional presence of a discharge resembling gonorrhœa as an accompaniment on sequence of scarlatina. He notices it chiefly in reference to its medico-legal interest, attaching, however, more importance to it in this view than it deserves in the present day, when the dependence of vaginal discharges on non-specific constitutional causes, especially in young children, is so well recognised. It does not appear to be a very common affection,

which is the more surprising, inasmuch as sanious discharges from other mucous membranes are common, as from the nostrils, ears, and rectum. The best treatment is by injections of nitrate of silver.

Provincial Journal and Medical Gazette.

Art. 7.—*Diagnosis of Typhoid Fever.* By Dr. E. Parkes.

(*Medical Times*, vol. xxi, No. 557.)

[Dr. Parkes concludes a clinical lecture on the above subject, by the following propositions:]

1. The diagnosis of typhoid fever is absolute when, on a febrile disease attended with looseness of the bowels, unequivocal rose-spots appear on the sixth or eighth day.

2. If there are no rose spots, or if these are indistinct, the diagnosis is still nearly certain, if in a febrile disease, mild or severe, which has lasted eight or ten days, there is, or has been, epistaxis; if there is diarrhœa with alkaline stools, abdominal pains, bronchitic rhonchi, with considerable muscular weakness, delirium, &c., provided that the *positive* symptoms of the diseases above enumerated are absent. If sudamina appear on and after the twelfth day, the diagnosis is strengthened. Hemorrhage from the bowels, in such a case, would almost make the diagnosis absolute, without reference to other affections.

3. If in a disease presenting febrile symptoms similar to those seen in typhoid fever, it is impossible to obtain any of the signs usually furnished by the skin and mucous membranes, viz. rose-spot diarrhœa, abdominal tenderness, epistaxis, bronchitic rhonchi, &c., the diagnosis of typhoid fever should never be given until inquiry has been made into the possibility of the case being one of those above enumerated. If, in such a case, the diagnosis of typhoid fever be ultimately given, this can be done only on the principle of exclusion, viz. by finding that the symptoms do not accord with the supposition that the disease is typhus, pyohæmia, latent pneumonia (i. e. pneumonia unmarked by the usual symptoms of cough and expectoration), acute tuberculosis, acute glanders, &c. Now, in many of these diseases, we have special symptoms which are easily recognised; as in typhus, the mulberry rash, the dusky skin, the extreme stupor, &c.; in pyohæmia, the yellowish earthy tint of the surface, or the absolute jaundice, the severe shiverings, the intense headache, torpor and delirium, which, to a practised eye is, I think, different from the delirium of either typhoid or typhus fever; in variola, malignant erysipelas, and in the gangrenous erysipelas from putrid infection, we have, in the vast majority of cases, diagnostic eruptions, or symptoms derived from the skin and subcutaneous cellular tissue, &c. In acute glanders, there is often the tuberiform cutaneous eruption, and the affection of the nasal mucous membrane; in pneumonia we discover the physical signs, unless the pneumonia be lobular and much scattered, when physical signs often fail; this case, however, is most commonly connected with pyohæmia. All these diseases are usually easily excluded; a very little care will enable us to be certain that they do not constitute the disease

before us, and in many cases, even if one of them, such as pyohæmia or erysipelas, supervenes on typhoid fever, the fact of there being two diseases present can be made out if the case has been watched.

It is, unfortunately, different with some other affections, especially acute tuberculosis, meningitis (tuberculous, purulent, or simple), cerebral softening of some kind, and, occasionally, delirium tremens. Any of these diseases may produce symptoms which closely simulate an ataxic form of typhoid fever. You will understand that, in many cases, the distinction of typhoid fever and these affections can be made easily by aid of the symptoms derived from the secondary effects on the skin or mucous membranes in typhoid fever, but we are speaking now of cases in which these utterly fail, in which we have decided that the case is not one of typhus, pyohæmia, variola, latent inflammation, &c., and consequently in which we have reduced the problem to the determination of whether the case is ataxic typhoid fever, *or* acute tuberculosis meningitis, delirium tremens, central cerebral softening, &c. I believe that error cannot always be avoided with the utmost care. Acute tuberculosis is most likely to be mistaken when it occurs in children. Often, however, there is a long initiatory period; the abdomen is comparatively unaffected, that is to say, there is little pain or diarrhœa, but there may be more sickness than in typhoid; the head symptoms have a different aspect, i. e., the headache and delirium do not occur in the regular order, but observe unusual alternations, and altogether the case does not exactly square with the symptoms of typhoid fever. The chest symptoms may be prominent, and afford a clue to the real nature of the case, although often all physical signs, except those indicating a general bronchitis, fail. Attention should also be directed to the absence of the positive signs of typhoid fever, viz. the rose-spots. In tuberculous meningitis we may have signs, from the presence of tubercle in the lungs or elsewhere, and sometimes assistance may be derived from considering, if it can be learned, the time when the headache and delirium came on, the contraction of the pupil, the degree of intolerance of light, which is greater in meningitis than in typhoid fever; the vomiting, which is more marked in meningitis; the state of the tongue, which is cleaner in meningitis; the comparative mildness of the pyrexia, i. e. of the heat of the skin, quick pulse, &c., in this latter disease. In delirium tremens we are often guided by the kind of delirium, the history of the case, &c., and there is not so much difficulty here as in meningitis. Central cerebral softening is characterised by the predominence, very early in the disease, of the cerebral symptoms over the general febrile condition, whereas, in typhoid fever, although there may be intense headache and delirium in the first week, these do not assume so predominent a character as in central softening.

The diseases which resemble typhoid fever by simulating one or two of its symptoms, are some forms of entero-colitis in children. In primary cases in adults, the local symptoms are disproportionate to the general febrile state. There is very little heat of skin, rapidity of pulse, no headache, delirium, or other cerebral symptoms, the stools are often slimy, with gelatinous flakes, mixed with more or less greenish fluid, but there is not the yellow or dark red fluid, and granular

curdy substratum of typhoid fever. The difficulty, however, is greater in children than in adults, as in them the febrile symptoms run higher. But the skin is seldom so hot as in typhoid, nor is the prostration so extreme; the appearance of rose spots, or sudamina, will decide the point.

[The author mentions another symptom which has been much insisted upon as a diagnostic mark, viz. enlargement of the spleen in typhoid fever. He observes that, in fact, the spleen is seldom so enlarged as to be appreciable by percussion, and he therefore does not regard it as worthy of confidence. He continues:

Finally, in fixing the diagnosis of typhoid fever in adults, it should never be forgotten that it is most common under forty; and seldom seen above that age. In old people there are many febrile conditions consequent on latent and subacute inflammation, or some urinary derangement which may, at first sight, bear some resemblance to typhoid fever, but the age of the patient will be an argument against the existence of the disease.]

Art. 8.—*On the Anæmia of European Invalids from Tropical Climates.* By Ranald Martin, Esq., f.r.s.

(*Lancet*, May 11, 1850.)

[We extract the following notice from an important series of papers on the diseases of European invalids, arising from the effects of tropical climates, on which subjects the author is justly regarded as a high authority:]

Of all the conditions incident to tropical invalids, anæmia is the most general. It presents the sequel most common to fevers, whether remittent, intermittent, or continued; indeed, whatever may have been the nature of his previous acute disease, whether it was fever, dysentery, diarrhœa, hepatitis, or cholera—we are pretty sure to find, in the tropical invalid, that ill state of the general habit termed cachexia. All the diseases just mentioned tend, directly or indirectly, to spoil the blood.

Where organic lesions are present, as the results of previously acute disease, or of a long residence in hot climates, they will generally be found associated with an anæmic condition of the system, so as seriously to complicate the case, and add to the difficulties of treatment. These considerations have induced the author to select anæmia as the first subject for attention; for the cachectic state now referred to must be very generally kept in view in the treatment of the European invalid, on his return from tropical climates. It has an important bearing on much that relates to the history, nature, and treatment of most of his disorders and diseases.

Anæmia is frequently produced by long residence in the malarious districts and stations of tropical climates, even in persons who have not been sufferers from actual disease, acute or chronic. This is what may be termed the *cachexia loci*. European females of the better

class, though far less subject to the more formidable of the tropical diseases than males, are yet, through long-continued disturbance of the nervous, vascular, and secreting functions, very liable to become anæmic. The excessive perspiration will of itself produce anæmia in weakly constitutions. The very treatment necessary to the cure of acute disease, especially bloodletting, mercury, and drastic purgatives, along with the most rigid abstinence, tends powerfully, even in young persons, to produce a deficiency of red particles; while the same courses of treatment, in persons of more advanced age, along with their more protracted exposure to malarious influences, are sure to diminish the old blood-globules, and prevent the formation of new globules. The "debility" spoken of by all writers who have noticed the condition of tropical invalids, as one of their main characteristics, will be found, in the great majority of cases, to be none other than the debility of the cachectic habit,—of anæmia, in fact.

Owing to this impoverished state of the circulating fluid, all the functions of the body are enfeebled—all the secretions defective and depraved. The author often finds severe and protracted anæmia to result from the unguarded application of leeches. Three hundred leeches, and, in one instance, five hundred, were mentioned to him as having been applied to the abdomen in remittent fevers, attended with gastric or hepatic complications, and in dysenteries.

Mr. E—, then a youth of sixteen, fell into the hold of a ship upon his loins. He writes: "I was bled three times; hot fomentations were used for ten days, and I had seventeen dozen leeches on (204), and was bled once more."

Lieutenant S— says: "I had three different times sixty leeches applied, and, I think, twenty more afterwards, making in all two hundred in less than ten days." This officer was tall, slender, and of delicate frame, and only nineteen years of age. If, as generally believed, the Indian leech abstracts an ounce of blood,—nay, if it be allowed to abstract but half that quantity, how large must be the aggregate amount of depletion in these cases?

Mr. Twining, speaking of the congestive fever of the cold season in Bengal, observes: "The altered appearance of the blood, in many of those fevers which arise from exposure to the malaria of the jungles, is very remarkable, and merits careful investigation. Connected with this morbid condition of the blood there appears, occasionally, some corresponding disorder of the solids, and particularly of the vascular system, which favours prolonged and profuse oozing of blood from leech-bites." The condition of the blood here mentioned is the anæmic; and without stopping to inquire as to the author's meaning on the other points of pathology here only hinted at, it may be questioned whether, in such a condition of the system, bloodletting ought at all to be practised. Certainly no one can doubt the unhappy consequences of the "prolonged and profuse oozing of blood, from leech-bites," in such cases. Some men never recover from the effects produced on the blood.

The anæmic patient generally presents a pale, sallow, or dingy, bloated, or exsanguine complexion, the eye being of a morbid, pearly whiteness, the expression dull and inert; the mind being irresolute,

feeble, and despondent, the memory impaired; in extreme cases, the mind is fatuous. The abdomen is tumid, inelastic, and congested; the skin harsh and constricted to the touch, and of a temperature generally below the natural standard.

The digestion is feeble and depraved; the processes of depuration are imperfectly performed; the feet swell. In anæmic patients, the author has found the temperature in the mouth to be generally below the natural standard. The mean of eighteen observations, by insertion of the thermometer in the mouth of an anæmic patient, during the months of November and December, afforded a temperature of 90°. On four days the temperature was taken before he left home, and after his return from a walk; the mean temperature was 85° before going out, and 88° on his return. The patient was an officer of engineers, a man of high scientific and practical attainments.

Neuralgic pains of the abdomen are very commonly to be found on exploration of that cavity; and when they are present in the epigastric, or in either or both the hypochondriac regions, there is a risk of their deceiving the inexperienced as to their cause: thus leading to very grave errors in treatment. The pains here spoken of, when of a neuralgic character, will always be found to disappear on the return of health; and the author would seriously urge the necessity of care in explorations, lest the pains in question be mistaken for those produced by organic disease in either liver or spleen. Here, in Europe, the patient presents the complete reverse of the order of his original acute state of disease under the sun of the tropics—to the acute disturbance of all the functions of life, a torpor and feebleness of corresponding extent has succeeded.

There is now a general cachexia, with atony of all the vital functions. The motions of the heart, along with those of respiration, are feeble and perturbed on the least exertion, and a blowing murmur in the direction of the pulmonary artery, and frequently a loud venous murmur in the neck, can be discovered. Palpitations and throbbings in the head are common. The excretory functions are imperfectly performed, the bowels are torpid, the tongue being coated and exsanguinous. It is evident that here, and owing principally to an altered condition of the organic constituents of the blood, a corresponding alteration has taken place in the nutrition of the various tissues of the body. The author finds, in short, that the functions of the stomach, bowels, kidneys, liver, lungs, organic nerves, and brain, are seriously disordered, through deficiency of blood, or through blood of a depraved quality, or both. Such patients, especially if advanced in life, are prone to hemorrhages, and to passive congestions of a serious nature in the abdominal or thoracic cavities, according to individuals acquired, or to hereditary tendencies. The state of anæmia here under consideration demands much care in the treatment. The heroic remedies, originally required to save life, are no longer possible to the cure. In their place must come those agents calculated to restore enfeebled functions in a healthy vigour, and then we have to rebuild the sunken and shattered frame. We have to impart tone to the organs of supply, by attention to diet, air, exercise, the various habits of life, and by the proper use of medicines, while we have a due regard, by these various

means, to the regulation of the excretory functions of the skin, liver, bowels, and kidneys. Such are the conditions that hold in the instances of vast numbers of persons arriving from our intertropical possessions, and such the author conceives to be the indications, which, for a longer or shorter period, according to the duration and severity of symptoms, should be followed in their treatment. Without such care the climate of England will do but little for them. When a young man presents the conditions here mentioned, the author is never satisfied with merely prescribing medicines for him, but advises his passing as much of his time as possible in the open air, under the most gentle exercise, and far from the temptations and from the atmosphere of our great towns. He seriously impresses on him the necessity of avoiding all occasion for the use of mercury. If benefit does not accrue within a given time, he recommends travel, and it is surprising what an impetus this simple measure gives to the flagging functions, and to the restoration of the blood. With no class of invalids is the *medicina mentis* of more importance than here,—the benefits to be derived from a well-regulated course of "dietetics of the mind" being second only to a proper adjustment of the ordinary medical appliances. "A journey," says Sir James Clark, "may indeed be regarded as a continuous change of climate, as well as of scene, and constitutes a remedy of unequalled power in some of those morbid states of the system in which the mind suffers as well as the body."

The medical management of these cases is generally easy, that is, when the patient is not advanced in life, and the anæmic condition is not complicated with organic disease. The various salts of iron may almost deserve to be termed specific; this is so much the case that we can hardly go wrong in prescribing the citrate of iron, the citrate of iron and quinine, the compound iron mixture, the protoxide and sesquioxide of iron, the old wine of iron, with or without the addition of tincture of the sesquichloride, the ammonio-citrate of iron, &c., while the regulation of the bowels may be effectively promoted by the use of the aloetic pill with myrrh, or aloes with iron.

To obviate the tendencies to headache, and to excitement of the heart's action, often arising from the use of chalybeate, the author is in the habit of ordering the sesquioxide of iron, in the first instance, and as a preparation for the other stronger salts. When carefully prepared, it is an admirable tonic and sedative.

Art. 9.—*Lemon-Juice in Acute Rheumatism.*

By Donald Dalrymple, Esq., Norwich.

(*Lancet*, Sept. 1850.)

[Since Dr. Rees called attention to this mode of treating acute rheumatism ('Abstract,' vol. XI, art. 3), it has been tested by several practitioners; and hitherto its influence has appeared to be highly satisfactory. From several cases placed on record, we extract the following as affording a marked example of the powers of the lemon-juice.]

My attention having been drawn to the treatment of rheumatism by

lemon-juice by my friend, Dr. G. O. Rees, and more recently again by his pamphlet on the subject, I offer a case, selected from many, as illustrative of its power and utility:—Mrs. T—, a small delicate woman, æt. 26, had suffered, for several winters past, from severe attacks of acute rheumatism, which lasted during various periods, from five weeks to two months. She had been treated in various ways for these attacks, and they had yielded to either colchicum, or opium, iodide of potassium, or mercury, or to all combined, but always left the patient very weak, and very susceptible of cold. I was called to her on the 28th of March, 1850, after she had been ill for ten or twelve days. She was suckling an infant of six months old, and had been in feeble health ever since her accouchement, which took place at the seventh month of gestation.

I found her with a pulse at 130; skin hot, and profusely perspiring; tongue white and coated; thirst excessive; urine scanty, clear, and not high coloured; bowels confined; pain intense, every joint set fast, and the patient unable to move an inch without assistance. From previous experience of the effects of lemon-juice, and from fear of reducing her powers, I determined to use it in this case, and gave her half an ounce every four hours, combined with twenty minims of tincture of hyoscyamus, in a drachm of water. I ordered her lemonade for drink, and arrow-root for diet.

March 29th.—She has passed a restless painful night; no sleep; symptoms unabated; bowels not relieved. Ordered a colocynth pill, and a draught of rhubarb with tartrate of potash, next morning. To continue the lemon-juice.

30th.—Bowels freely relieved; the rheumatism unabated; pulse still 130; complains of pain over the region of the heart; the stethoscope gave no indication of pericarditis, but to relieve the pain, I applied a blister to that region.

31st.—Still in great pain; pulse 125; tongue cleaner, and less thirsty; no sleep; bowels purged four or five times. Ordered ten grains of compound powder of ipecacuanha at bedtime. The infant was also troubled with griping and diarrhœa, which was easily relieved by an aromatic astringent.

April 1st.—The pains somewhat abated; pulse 120; tongue cleaner; but the joints of the patient still completely set fast. Increased the lemon-juice to six drachms every four hours.

2d.—Decidedly better; pulse 108; tongue cleaner; thirst gone; pain less, and able to turn in bed without aid. The improvement continued through the succeeding days, and on the 5th the dose of lemon-juice was reduced to four drachms every five hours. From the 7th instant, the patient continued to improve rapidly; her pains left her; her appetite returned; her pulse fell to 90; and on the 10th she left her bed.

15th.—She got down stairs, and I ceased my attendance; but I visited her on the 25th May, and found that she was, in spite of very cold, wet, and unpropitious weather, free from all pain, and in her usual health.

Though nothing could be more satisfactory than the progress of this case, I am unable to point out the *modus operandi* of the medicine. As

soon as the system came fully under its influence, the pulse fell, the fever abated, the pains subsided, and the appetite returned, yet nothing further noticeable took place. The secretions were but little affected, except that the urine, from being very scanty, became copious, but there was no deposit of any kind in it. Here is a patient who usually has not got quit of her attacks under six or eight weeks, and is then left weak and emaciated; but who, under lemon-juice, is, at the end of nineteen days, down stairs, and very little the worse for her attack.

[The author remarks, that should this medicine stand the test of time and hospital practice, and we be able to avoid either half poisoning our patients with colchicum, stupifying them with opium, or enervating them with mercury, a great boon will be conferred on the suffering multitudes of this variable climate.]

Art. 10.—*On the Treatment of Obesity.* By Dr. T. K. Chambers.

(Corpulence, or Excess of Fat in the Human Body, &c. Lancet, p. 128.)

[The subject of corpulence has not met with such consideration as it deserves; we, therefore, have great satisfaction in being able to lay before our readers an extract from a series of papers in which the light of modern science has been most admirably concentrated upon it. Obesity, though too often the subject only of witticism, is in many cases a real evil; and the practitioner will therefore gladly avail himself of any rational mode of obviating its inconvenience. In regard to treatment, Dr. Chambers observes:]

That form of disease which commences at birth, and goes on increasing during infancy and childhood, is, I believe, so invariably fatal before the age of puberty, that I do not think we have reason for hoping that it is in any way amenable to medicine. At all events, I have not been able to discover any one whose experience has led him to pronounce it curable. It is a form of monstrosity; and as the subjects of it commonly display some other bodily malformation, and a deficiency of intellect, their death is a relief from a miserable prospect.

When it begins in childhood, or about the time of puberty, we must not be deterred by the circumstance of its being hereditary from attempting to remedy the inconvenience arising from it. We cannot truly reduce our patients entirely to the average size and weight, but we may enable them to pass life in comfort and usefulness.

The later the disease commences, the more controllable it is by management, until the middle period of life is passed, and then old age impedes in some degree the benefit which we may confer, not by rendering our measures inert, but by preventing our employing them quite so actively as we should have done earlier.

The first thing indicated, in all cases, is to cut off, as far as possible, the supply of material. Fat, oil, butter, should be rigorously interdicted in the diet table. But all eatables contain some portion of oleaginous matter, and especially those most convenient to advise the use of for a lengthened period. And almost all are capable of a transformation into fat, when a small quantity of this substance is pre-

viously present. It is desirable, therefore, that the mass of food should lie in the stomach as short a time as possible, in order that at least a fatty fermentation may not be set up in it. Very light meals should be taken at times most favorable to rapid digestion, and should consist of substances easy of solution and assimilation. To this end, the time of the meals should be fixed for an early hour in the day, before exertion has rendered the powers of the entrails languid and weak. Breakfast should consist of dry toast, or what is still better, sea-biscuit; and if much active exercise is intended, a small piece of lean meat. Dinner at one, on meat with the fat cut off, stale bread or biscuit, and some plain-boiled maccaroni, or biscuit pudding, by way of second course.

Liquids should be taken, not at the meal, but half an hour after, so as not to impede the action of the gastric juice upon the mass. Here should end the solid feeding for the day; no second dinner or supper should follow, nor, indeed, any more meals be taken sitting down. A piece of biscuit and a glass of water can be taken standing up, if faintness is experienced; a cup of gruel or roast apple before going to bed.

This is not a scale of diet by any means unattainable. A butcher and retired pugilist has adopted it for some years with the greatest comfort to himself. He is able, upon it, to work in the most violent manner in a small garden which he cultivates for himself in the suburbs. He has reduced himself from 20 to 17 stone; whereas his brother, who has not the same strength of mind, has increased to 23 stone in weight. Persons of more refined education ought, and often do, practise the same self-imposed restraint more easily. J. R— has reduced himself from 22 to 18 stone, and sometimes brings himself down to 17, but finds that he derives no particular advantage from being of the lower weight.

The smallest amount of nutriment consistent with the health of the individual can be found by experiment only; but we need not fear that ten ounces of solid food a day is too little, for the last-mentioned gentleman confined himself for a long period to that quantity, and found his mental and bodily powers always equal to the strain which the pursuit of a laborious profession in London demands. It may be remarked, by the way, that it is often advisable to add a small allowance of malt liquor at dinner, as otherwise the craving of the appetite is less easily appeased. The beers to be avoided are of course the thick, sweet kinds, but that which is thoroughly fermented, at a low temperature, in the Bavarian way, seems to contain very little injurious matter.

I do not know that any advice concerning sleep is peculiarly applicable to obese persons, beyond what we should recommend to all classes of men. A draught of morning dew, "nocturni roris auram ante solis ortum bibendam," which Aurelian prescribes for the corpulent, is equally beneficial to every one. They are usually uneasy sleepers, and though lethargic, by no means averse to early rising.

In cases where the fat is largely accumulated in the omentum, it is very convenient for the patient to wear a band round the abdomen, which may be tightened gradually. The support thus given to the

abdominal muscles relieves the dragging sensation in the loins, which many persons, whose viscera are heavy in proportion to their strength, experience. It enables exercise to be taken with more facility, and appears also, by pressure, to afford some assistance to the absorption of fat.

The above remarks will apply equally to all forms of obesity; the abstinence recommended can be borne even by the aged, and only comfort be experienced.

As respects exercise, however, a distinction requires to be made. The young and vigorous, whose obesity does not prevent the use of their legs, cannot employ them more usefully than in walking as long as they are able. The greater number of hours per day that can be devoted to this exercise, the quicker will be the diminution of bulk. But as riding, by the gentle shaking of the abdomen, excites the secretions of the digestive organs more, it should, where practicable, be employed in addition. Where freedom of motion has once been gained, rowing, shooting, any or all of the forms of British gymnastics, should be adopted as regular habits.

But in the asthenic form of the disease, especially in elderly people, this is scarcely practicable. The defect in muscular power prevents the use of the limbs in walking for a long time enough to be advantageous. But where riding can be managed, it should on no account be omitted, and the suspensory belt before mentioned is often a valuable auxiliary to the employment of this exercise.

The ancients were much more in the habit than we are of using various forms of friction to the skin in treating chronic complaints; and we find in Aurelian a recommendation to the corpulent to employ dry rubbing, either with cloths alone, or with the addition of various powders. Modern habits of cleanliness supersede, in some degree, these remedies. But the skin is not unfrequently greasy from a thick sebaceous secretion, and the circulation through it languid in asthenic obesity, and in these cases horsehair gloves may be used with great advantage. Dr. Flemyng strongly advises friction to be employed to the trunk of the body as promoting absorption and invigorating the surface. The Greek additions of cold bathing or sponging, especially with sea-water, the vapor or hot-air bath, followed by rubbing with salt or with sand, and many other modifications of the same principle enumerated by Aurelian, will naturally suggest themselves to every intelligent patient. The same author very sensibly advises these remedial measures to be employed fasting, and no food to be taken for some time afterwards, and modern habits render before breakfast a convenient time. To these rules of management, medicines, strictly so called, must be viewed as secondary and auxiliary. Unless these laws are obeyed, pharmacopœias are useless.

Purgatives I have generally found not needed in the plethoric form; the bowels usually act once or twice in the day. But in the asthenic obesity *of old people,* where the abdominal walls are weakened by long pressure of an unnatural weight, it is necessary to employ them.

But there is one class of medicines so universally applicable to *all* cases of obesity, that I think a trial of them should never be omitted. The chemical affinity of alkalies for fat, point them out as appropriate

alteratives in this complaint, and experience proves that they are suitable to the state of the digestive organs. The most eligible one is liquor potassæ, and it may be administered in much larger quantities than any other. If given in milk-and-water, we may safely commence with half a drachm, and raise the dose to a drachm and a drachm and a half three times a day. The milk covers the taste of the potash better than any other vehicle. It has truly the advantage of saponifying a portion of the remedy, but there is no evidence to prove that its efficacy is thereby endangered; indeed soap itself has been strongly recommended. A physician, whose case is recorded by Dr. Flemyng, reduced himself, by alicant soap alone, two stones in weight.

I have often given the above-mentioned doses of liquor potassæ (even to children in cases of scrofula and consumption) without any harm arising from its use, when taken, as desired, in milk. The fear of alkaline medicines has probably arisen from the injury observed by Huxham to follow the use of Mrs. Stephen's saponaceous mixture, at one time so popular, and therefore often misapplied. The injury appears to have originated from their having been employed in improper cases, such as debilitated gouty subjects, chronic stone in the bladder, and the like, to which, of course, much harm would be done.

A poor woman who sold eggs in Chelsea, was becoming quite unable to gain her livelihood by her ordinary occupation. I have not kept a note of her weight and height, and therefore she is not mentioned in the table of cases, but she was extremely obese, and the cause of a variety of symptoms she complained of seemed traceable entirely to the accumulation of fat. By taking liquor potassæ only, without change of diet, she was reduced so far as to carry on her trade with comfort.

Another case was communicated to me the other day, of a gentleman who weighed 19 stone 7 lbs. By regimen, exercise, and liquor potassæ, he was reduced two stone and a half in six weeks.

I have mentioned bleeding, and perhaps that may cause some surprise, after the observations which have been made on the state of the circulation in fat people. But where distinct signs of plethora are present—such as pain over the eyebrows, beating of the temples, restless sleep by night, lethargy by day, with full lips and an elastic skin—it is capable of being employed with safety; and where it is employed, the advantage derived at the commencement of a course of treatment is very great, for it gives all the other remedies a fair start; and by affording immediate relief to many symptoms, gives the patient a favorable opinion of the plan he has undertaken.

On the other hand, it is scarcely necessary to say, that much risk attends the loss of blood; for if the heart has become atrophied and weak, it will not stand the shock. Venesection may cause either sudden death, from failure of the heart's action, or effusion of blood in the brain, from disturbance to the circulation.

Bitter tonics are often of great advantage in enabling the stomach to digest more easily and rapidly, and therefore to be contented with a smaller quantity of really nourishing food. The increase of appetite which they cause does no harm; for when patients are getting better, they are usually more obedient to their medical man, and can be taught

to control it. Gratitude for the benefit they have received makes them glad to follow advice, however hard.

Some medicines must now be mentioned, which have been recommended for the cure of obesity, but which analogy and experience do not approve.

Vinegar has been employed by those who are foolish enough to practise upon themselves; but as it produces thinness only by injuring the digestive organs, the benefit is not worth the price paid for it, and no medical man would ever advise the use of such a remedy.

Iodine has been spoken of as likely to do good, from the power it exhibits of stimulating the absorbents in cases of scrofula and tumours. But its moderate use certainly does not cause the disappearance of healthy fat. Indeed it has been noticed by Lugol, and is matter of daily observation at our metropolitan hospitals, that patients frequently acquire a considerable degree of embonpoint during the time they are taking iodine. The cases of tumours and of fat are very distinct. As Dr. Pereira remarks, "The enlargements which these agents (mercury and iodine) remove, are not mere hypertrophies; their structure is morbid, and they must in consequence have been induced by a change in the quality of the vital activity; in other words, by morbid action. Medicines, therefore, which remove these abnormal conditions, can only do so by restoring healthy action." But the action which causes the deposition of fat in the adipose tissue is, though excessive, of a healthy nature, and harm, rather than benefit, is to be expected from the medicine under discussion; that harm which always accrues from a valuable remedy wrongly employed.

SECT. II.—DISEASES OF THE NERVOUS SYSTEM.

ART. 11.—*On Partial Paralysis.*—By Dr. CHRISTISON.

(*Edinburgh Monthly Journal of Medical Science*, June, 1850.)

[We extract the following remarks, in a somewhat condensed form, from an admirable clinical lecture, in which Dr. Christison takes a comprehensive view of the various forms of local paralysis. He first speaks of loss of power in certain muscles as a consequence of fever. Of these he observes:]

Partial palsies of this kind generally follow acute febrile diseases, especially continued fever. In one case, the *rectus femoris* and both *vasti* muscles were perfectly palsied and atrophied. In this case remedies were of no avail. In another, after the fever, both deltoid muscles were found to have lost their power, and were much wasted. In a third, a young lady lost all power over the movements of the ankle joints; she had no other paralytic affection; she recovered in two months under iron and generous diet.

The cause of these paralytic affections is obscure. Sometimes they can be referred to mechanical injury, but in the majority no local cause can be ascertained.

The treatment is simple. If the cause be local, local remedies may be applied. In other cases we must rely on a general tonic regimen, with graduated exercise, sinapisms, friction, and galvanism.

[Partial paralysis, however, occurs most frequently in the face and organs of sense, than in the extremities. In the face the varieties of paralysis are limited only by the number of nerves by which it is supplied; these are noticed seriatim.]

The loss of smell has been traced to organic disease in the first pair.

Amaurosis is one of the effects of disease of the second pair.

The third cerebral nerve, or motor oculi, when pressed or injured, causes inability to raise the eyelid, and to raise, depress, or turn the ball voluntarily. Of these symptoms the dropping of the upper lid is the most constant. Some have noticed dilatation of the pupil, which is supposed to be accounted for by the third nerve sending a twig to the lenticular ganglion. This form of paralysis is comparatively rare.

The fifth nerve being a compound one, the result of interrupting its functions are complex. The consequences of paralysis of this nerve are flattening of the temporal and masseteric regions, loss of taste and common sensation on one side of the tongue, anæsthesia of the whole of the face on the same side, including the nostril and eye. A singular consequence is destructive inflammation of the eye. As this nerve consists of three divisions, all the above signs may not be present, as the injury may not extend to all the branches.

When the sixth nerve is paralysed, the patient squints inwards, and sees double in some directions.

Of all the cerebral nerves, none is so frequently affected with paralysis singly, as the seventh. When the portio mollis, or auditory nerve, is affected, deafness is the consequence, and there may be no other symptom of paralysis. When the portio dura is paralysed, the whole side of the face becomes blackened and pendulous, and the mouth is drawn to the opposite angle. The patient cannot hold an object between the lips on the affected side, nor can he whistle. When he laughs, one side of the face remains at rest. The eyebrow droops, or he is unable to close the eye on the affected side. Sometimes the portio dura is paralysed on both sides at the same time, but this is a rare occurrence.

The eighth nerve being also complex in its origin and distribution, the consequences of injury are also complex. It supplies some of the muscles of the pharynx and back of the tongue, and by its pneumo-gastric branch, the larynx, pharynx, œsophagus, lungs, heart, and stomach; by its spinal accessory branch, it gives motor energy to the sterno cleido mastoideus and trapezius. The consequences of injury to the nerve are therefore very serious.

The ninth, or hypoglossal nerve, supplies all the lingual muscles which are not supplied by the glosso-pharyngeal; and as the origins of the two nerves are close, they are frequently involved in the same disease. When this happens, articulation is slow and imperfect, the tongue cannot be protruded, and deglutition is difficult.

All paralytic affections of the tongue and pharynx must be regarded with great suspicion, however slight they may be; as they generally

indicate disease at a part of the brain where a great variety of nerves important to life are closely grouped together.

[Having given the preceding sketch of the chief varieties of paralysis of the cerebral nerves, the lecturer proceeds to the following general remarks on the pathological causes, diagnosis, and treatment of such cases:]

Of the pathological causes of partial paralysis, the first to be mentioned is organic disease of the encephalon at or near the origin of the nerves implicated; and in different instances, inflammation, softening, tubercle, indurations, or extravasations have been observed. The most frequent cause of paralysis of the fifth, eighth, and ninth nerves, seems to be thickening of the membranes at the base of the brain. Disease of the nerve itself between its origin and entrance into the bones of the skull is not so common.

Art. 12.—*On the Treatment of Delirium Tremens.*

By R. B. Todd, M.D. F.R.S.

(*Medical Gazette*, 1850, p. 1077, &c.)

[The following remarks form part of a series of lectures given by Dr. Todd, in continuation of the Lumleian Lecture, on the 'Pathology and Treatment of Delirium and Coma,' an abstract of which will be found in our 'Report on the Practice of Medicine,' in the present volume. The author first gives the distinction between *delirium ebriosorum*—true delirium tremens, and *delirium e potù*—which may occur in the most temperate. Of the treatment of the former he thus speaks, first alluding to the mild form of the disease.]

1.—The milder form of the disease is characterised by the occurrence of horrors, hallucinations, tremor, vigilia. In such cases the patient fancies he sees demons, or dragons, or insects creeping over his bed, or flying in the air; he is suspicious, and thinks everybody is combining against him to do him some injury; or he dreads some impending evil, and fancies himself about to die, or to fall into misfortune. With some or all of these symptoms there is more or less of tremor accompanying the voluntary motions. If the patient be asked to hold out his hand, he does so with a remarkable and characteristic tremor: this tremor interferes greatly with the due performance of many acts which require a nice muscular adjustment: he cannot hold and adjust his pen properly: he is a long time about buttoning his coat or his breeches, or tying his cravat: to pick up a pin, or neatly insert it into any part of his garments, is quite beyond his power. So also if we make him shut his eyes strongly, or protrude his tongue, we witness the same characteristic tremulousness in those actions. He finds it difficult to obtain sleep, and if he does sleep it is only for short periods, frequently being waked up in a fright by horrible dreams, or with nightmare. With all these symptoms of disturbance of the nervous centres, the patient's skin is moist, often perspiring freely, his tongue is clean, and his pulse soft, and not quick.

In every case of this kind it is important to remember, that the balance of nutrition, so to speak, is disturbed by some cause,—either

by the want of proper food, from loss of appetite or from the inability to procure it, as we often find with our poor hospital patients; or by the impairment of the functions of the stomach, through the repeated use of stimulants, so that the patient is unable to retain or digest nutritious food.

The great object of treatment, therefore, is, to restore the balance of nutrition and to procure sleep, in which, if you succeed, you cure your patient in a very few days. It generally happens in these mild cases, that the discipline, the regular hours, and the care to which the patients are subjected in an hospital, restore them to health with very little medical interference.

[A case is detailed in illustration, in remarking upon which the author insists upon the importance of procuring sleep, for which he prefers crude opium. He then proceeds to the consideration of the severer form of the disease.]

We have now to consider the treatment of confirmed delirium tremens. In deciding upon the appropriate treatment for such cases as these, we must first look to the immediate cause of the disturbance of nutrition. This has either been dire want, or that the stomach has become so irritable that he rejects everything he takes. Under such circumstances, the greatest nicety is required in the administration of nutriment. If the stomach will not bear solid food or animal broths, milk may be given, the caseine of which may serve for solid food; but it must be given in small quantities at a time, and it may be combined with lime-water, or sometimes even with very small quantities of some alcoholic stimulant—brandy, rum, and gin, it being generally better to select that stimulant which the patient has been accustomed to drink. The patient may be able to retain nourishment of this kind if given in table-spoonfuls, or even teaspoonfuls, at a time, while, if larger quantities were administered, vomiting would ensue.

At the same time, we may with advantage attempt to allay the irritability of the stomach by other means likewise,—as by giving ammonia in effervescence, or the common effervescing draught of soda or potash, or by prussic acid given with or without effervescing medicines; or we may have recourse to a very useful and effective remedy —kreosote combined with morphia, in small doses in the form of pills. Iced water, or small quantities of the pure Wenham Lake ice, will allay the irritable stomach when other means fail. Counter-irritation over the region of the stomach may be also employed with benefit,—as mustard poultices, or flannels wrung out of hot water and sprinkled with turpentine.

The mucous membrane of the stomach is, no doubt, in these cases, sometimes in a state of actual inflammation, or nearly approaching to it, although less frequently so than many suppose; and it may be desirable to apply leeches to the epigastrium; but, as a general rule, it behoves us to be cautious about taking blood in these cases.

I need scarcely add, that in all cases where the stomach is highly irritable, it is very important to have the bowels freely evacuated, either by purgatives or by enema.

Let us now suppose that your patient, not having slept for many hours, is in a state of delirium so violent that he cannot be kept in

bed, and is with difficulty kept from injuring himself or others; how are we to act in such a case?

There are three points to which attention must be especially directed:—

1. The due administration of nourishment.
2. The means of restraint.
3. How to procure sleep.

I have already sufficiently considered the 1st point, and shall only add, that whatever the nature of the delirium, this point is primary and paramount.

2. With regard to the question of restraint, it is obviously of the greatest importance that the patient should be restrained from injuring himself and others, and that he should be kept in a horizontal posture, as not tending to exhaust, and most favorable to sleep; but I caution you from being tempted by the solicitation of the friends or attendants of the patient, to use the strait-waistcoat in any case in which it can possibly be avoided; although in one sense secure, it is a bad practice.

If a patient be watched who is tied down by the strait-waistcoat, it will at once be seen what is the main objection to it as a means of restraint. It will be perceived that the patient is continually using the most forcible efforts to extricate himself from it. The pressure upon his arms and legs excites in his mind the idea that he is held down by persons who are sent to torment him, and thus his delirium is kept up or increased, and he uses all his might to free himself from his imaginary tormentors. These efforts are generally accompanied by violent perspiration, and are followed by extreme exhaustion; and they are obviously greatly opposed to any efforts we may make to procure sleep and to restore the balance of nutrition.

3. To procure sleep, there is no remedy, as I mentioned before, better than crude opium or laudanum Theory recommends these preparations because they are known to contain all the active principles of the opium, and therefore the chances of obtaining the sedative and narcotic influence are greater with opium than with morphia. Practice recommends them, because in many persons opium is not so liable to disagree with the stomach as morphia.

When opium is given, do not be timid with it. Give a full dose at once, two or three grains, or a drachm of the tincture, and be guided by the progress of the case as to the frequency of its repetition and the amount of the subsequent doses.

The combination of camphor with opium frequently counteracts the unfavorable and promotes the sedative influence of the latter. But I know no combination which, generally speaking, answers better in delirium tremens, especially where there is much depression, than that of quinine with opium. One or two grains of quinine, with from ten to thirty drops of laudanum, given every four, six, or eight hours, often answer extremely well.

Many practitioners, and among them some whose opinion is entitled to the greatest respect, have recommended a combination of tartar emetic and opium, and place great faith in this admixture; but I think a fallacy may exist here, in the fact that opium undoubtedly

modifies and controls to a great extent the action of tartar emetic, so that in fact, whilst administering the two drugs, we may in truth be simply giving opium. If we could always succeed in limiting the influence of the tartar emetic to its simply alterative effects, there would be no objection to its use, as its action on the skin would materially assist in eliminating poisonous matters from the system, but its depressing influence does positive harm, and is not always so readily counteracted as is desirable. For this reason I seldom or never have recourse to this combination.

Another expedient which should be kept in view, as a means of quieting delirious patients, is the application of cold to the head, either by a bladder of ice or by the use of the cold douche. Both, it must be remembered, are powerful agents, and tend to produce depression of the heart's action, which may be carried to such an extent as to kill the patient, if the douche be applied too powerfully, or the ice be kept applied too long.

Sometimes, when we have persevered with opium for some time, the pupil becomes contracted, and yet the patient does not sleep. In such a case are we to persist in giving opium? I think a very contracted state of the pupils ought always to be taken by the practitioner as a strong indication against the further use of opium, and that then he may have recourse to other sedatives. Under such circumstances I incline to think we have a most valuable resource in the administration of chloroform, but I have not yet had sufficient experience of its effects to justify me in speaking positively about it.

[In some of the worst cases of this malady there is a great tendency to coma. Of these, Dr. Todd says:]

In such cases, the rule to uphold the powers of the patient as much as possible applies equally with the others; but it is plain that we shall have to give up the use of opium and all other sedatives, as tending to increase the coma. It is in the cases in which there is a tendency to coma that we are called upon particularly to inquire into the state of the secretions, especially into that of the urine: in many such cases, albumen will be found in the urine, indicating that the tendency to coma depends on the non-elimination of the urea and other elements of the urine, in consequence of an unhealthy state of the kidney. Under such circumstances it will be found beneficial to apply blisters either to the back of the neck or to the head, and to keep the blistered surface discharging, in order to promote the elimination of the poison; at the same time, and with the same object, we should promote the action of the skin and bowels as much as the strength of the patient will permit.

Art. 13.—*On the Treatment of Rheumatic and Gouty Delirium.* By R. B. Todd, M.D. F.R.S.

(*Medical Gazette*, 1850, vol. vii, p. 69.)

Rheumatic delirium generally comes on suddenly in the course of rheumatic fever, and is frequently *coincident* with pericarditis and endocarditis. I say it is *coincident* with the cardiac affection, and not

necessarily related to it as effect to cause; because the amount or severity of the delirium bears no proportion to the intensity of the inflammation; for we may have slight peri- or endocarditis with severe delirium, or we may have slight delirium with extensive inflammation of the heart; and we know well that the cardiac inflammation often exists without the delirium. The severity of the delirium is, however, in proportion to the debility of the patient. When we have a very watery state of the blood, or where the blood is deficient in colouring matter, and when, also, perhaps the blood is much charged with the rheumatic poison, we have a condition highly favorable to the production of delirium.

The rheumatic delirium undoubtedly occurs more frequently in those cases of rheumatic fever which have been treated by bleeding; and probably because bleeding makes the blood watery, and diminishes its red particles. When I was in the habit of bleeding in every case of rheumatic fever, as I used to do some years ago, a much larger portion of my patients were attacked with delirium than now, when I never bleed in this disease: indeed, now I find it difficult to meet with a case of this form of delirium.

Now let us suppose that we are called to see a patient who had been labouring under rheumatic fever, and who has suddenly become delirious, with or without difficulty of breathing. From what we now know of the clinical history of the disease, we should at once examine the state of the heart, whether there were any symptoms referable to that organ or not. Let us suppose that we find, as in the majority of cases we shall do, a rubbing sound, showing the existence of pericarditis, or a bellows' sound, indicative of valvular disease or of extreme anæmia. What are we to do in such a case as this? The patient is quite delirious, tosses about the bed-clothes, talks wildly, tries to get out of bed, and will not be restrained.

Although there is inflammation of the heart here, and none of the brain, yet we may be assured, that the symptom which demands most earnestly our first attention is the delirium; and that whatever may be our theory as to the relation of the delirium to the affection of the heart, the interests of our patient demand the instant adoption of means to quiet the state of excitement into which he has passed. Important and serious as is the affection of the heart, as compared with the delirium, it is just now of no moment; for if the delirium be allowed to continue, there is great danger of the patient dying suddenly from exhaustion.

Fortunately, however, we have in opium a remedy equally applicable to the cardiac, as well as to the cerebral affection. In these cases we must give opium to produce sleep, just as we should do in traumatic delirium, or in delirium tremens. Opium thus given will quiet not only the brain but the heart also; and it no doubt exercises a favorable influence on the inflamed serous membrane likewise, checking the spread of inflammation and promoting its resolution.

At the same time we shall find it useful to apply a blister to the region of the heart, and to promote a free discharge from the blistered surface. But we must avoid bleeding, whether general or topical, if we wish to get our patient through without untoward symptoms, and reserve

all other depressing treatment until the symptoms of delirium have passed away. During delirium we must also be careful to administer support, because the very existence of delirium makes great calls on the powers of the patient, and he therefore requires to be freely supplied with nutritious matter easy of digestion, and with stimulants. We need not be deterred from giving opium, and administering support and stimulants, by the fear lest such treatment should increase the cardiac inflammation; the experience of many cases convinces me, that under this plan the heart becomes less irritable, the pulse slower, and the cardiac inflammation becomes circumscribed, and it tends to terminate by resolution or adhesion rather than by the effusion of water. On the other hand, if we persist in an antiphlogistic plan, we keep up or increase delirium, we exhaust the powers of the patient, and effusion is apt to take place into the pericardium, whereby the heart's action may become seriously impeded.

If this treatment be commenced early, and pursued effectually, it is rare indeed for the patient to go wrong.

The treatment of this form of delirium by antiphlogistic means, is, in my opinion, as inexpedient and as dangerous as that of delirium tremens by a similar plan; and we are not justified in assuming that the practice is safe or desirable because cases have got well under it.

I have but little to say upon the delirium which accompanies acute gout, because the remarks I have made upon the rheumatic delirium are equally applicable to it. I shall content myself with stating that, while the delirium is essentially of the same nature as the rheumatic, it has a greater tendency to pass into coma. While, therefore, our treatment ought to be in all other respects of the same kind, we must not be so ready to administer opium as in the rheumatic delirium; we should wait to observe whether there is any marked tendency to coma. I had a well-marked example of this form of delirium in one of the college porters, a stout lusty man who used to attend the gate. After having had several attacks in the great toe, he had a very severe attack of general gout, resembling very much rheumatic fever, but without any inflammation of the heart. He became violently delirious, so much so as to require restraint. I was called to him in this state, and prescribed stimulants, and treated him much in the same way as if it were a case of delirium tremens; but I did not give him opium. He took hyoscyamus, and after a time, as there appeared to be no tendency to coma, I ordered him small quantities of opium. He soon improved, and rapidly got well.

In the delirium of rheumatism and gout we occasionally meet with cases of sudden death from exhaustion: the patient, after an effort, suddenly falls back dead. Hence, when delirium shows itself during rheumatic fever or acute gout, the attendants of the patient should be warned of this danger, and distinctly instructed to watch the patient closely, so as to prevent as much as possible all exertion, and to keep him in the horizontal posture.

One point which I wish particularly to be noticed is, that as in pneumonia, and in cases of severe injury, we may prevent the delirium, so also in rheumatic fever and in acute gout we may keep it off by avoiding extreme antiphlogistic measures, under the idea of cutting

short the disease. I am convinced it is an erroneous notion, to which careful clinical observation gives no countenance, that such a disease as rheumatic fever may be cut short by a bold stroke of the lancet. There are mild cases as there are severe ones, and it is not easy to distinguish the one from the other at their onset. The practitioner, therefore, who bleeds as a matter of routine, will often meet with cases which will *appear* to have been cut short by such a practice. And even if we do cut short the disease by the sudden abstraction of a large quantity of blood, it will be at a tremendous cost to the patient, involving years of subsequent delicate health.

Our object in the treatment of these cases should be, not so much to cut short the disease by debilitating the patient, but carefully to guide him through the malady, promoting the elimination of the morbid poison, and at the same time protecting his powers against its depressing influence. By this mode of proceeding we do not pretend to cut short the disease, but we shall guide our patient safely through it, and shall much shorten the period of his convalescence.

Art. 14.—*On the Treatment of Coma in its various forms.*

By R. B. Todd, M.D. F.R.S.

(*Medical Gazette,* vol. ii, p. 135, 1850.)

[In speaking of the general treatment of coma, Dr. Todd excludes apoplectic coma, as well as that which arises from inflammation of the brain. He says, that in dealing with any particular case of coma, we must be assured, in the first place, that it does not arise from pressure. or from inflammation of the brain. On the diagnosis of the former he observes :]

This diagnosis is by no means easy; with the greatest precautions mistakes will arise, so closely do the symptoms of one kind of coma resemble those of another.

The points to which we must look are—

1. The history of the case.
2. The mode of accession of the coma.
3. The state of the pupils.
4. The existence of a paralytic state,

In most cases of apoplectic coma there have generally been some threatenings beforehand; such as pain or uneasiness in the head, giddiness, muscæ volitantes, tinnitus aurium, or other subjective phenomena of the senses. We must be particular to inquire about these points. The coma of apoplectic effusions always comes on more or less suddenly. The sudden supervention of coma in a man previously healthy affords a strong presumption in favour of the apoplectic nature of the coma; and this is especially the case when there have been no convulsions, no mental excitement or emotion, previous to the attack, and when epilepsy does not appear in his history. A dilated state of the pupils generally accompanies the apoplectic coma; but as this is very common, even to a greater extent, in epileptic coma, it gives us no efficient aid in the

diagnosis. When, however, one pupil is dilated, and the other natural or contracted, we may have strong suspicions of injury of the brain. This is especially the case if the coma be accompanied or preceded by paralysis of one side of the body.

When the apoplectic effusion takes place in the vicinity of the third pair of nerves, tearing up the brain more or less, a highly contracted state of the pupils is apt to take place.

The sudden occurrence of a hemiplegic paralysis simultaneously with the state of coma affords a strong indication that the cause is an apoplectic effusion. Even with this symptom, however, we shall occasionally be deceived. In the Lumleian Lectures I referred to a case of this kind in which there were sudden hemiplegia and profound coma, and after death I was unable to find a clot in the brain.

In investigating cases of coma we must be most careful to inquire into the state of the renal and hepatic secretions. When either the liver or the kidneys fail, the patient becomes comatose. The liver may fail, either from actual non-elimination,—the elements of the bile remaining in the blood,—the liver having lost its power of attracting them out of it,—or there may be some mechanical impediment to the flow of the bile, either in disease of the ducts themselves within the liver, or in some stoppage of the hepatic or common ducts outside the liver. The hepatic derangement shows itself plainly enough in the jaundiced state of the patient. When the kidney is at fault I need not say, that we shall find the evidence of it in a careful chemical microscopical investigation of the urine.

The former history of the patient affords the mast valuable and important guidance in the diagnosis of the various forms of comatose affections. We must inquire into the state of the patient previous to the occurrence of the coma, and must consider whether he has been the subject of epilepsy, gout, rheumatism, hysteria, or renal disease, as the coma may arise from any of these conditions. We should also inquire into the previous habits of our patient, as to intemperance, taking opium, &c., as coma may arise from the presence of opium or of alcohol in the system.

We must, then, before fixing upon our line of treatment, be satisfied that the coma is not apoplectic,—that is, from pressure; and also that it is not due to the presence of opium or of alcohol in the system.

Excluding these, the coma may be traumatic, from shock, producing simple concussion of the brain, or it may be epileptic, or renal epileptic, or hysterical, or rheumatic, or gouty. I shall not dwell upon the diagnosis of these forms of coma from each other, but proceed to refer briefly to the treatment of each.

First, then, as to the *traumatic coma*. This is that state which surgeons describe under the name of concussion of the brain. We have unquestionable evidence that it is not a state of inflammation, or of active disease of any kind, but simply one of suspension of the powers of the brain due to the shock occasioned by the injury. We do not know exactly what the precise condition of brain is in this traumatic coma. It is, however, a state analogous to that of sleep, in which the natural actions of the brain are depressed rather than exalted; to use

an expression borrowed from the Stock Exchange, they are *below par*. In the milder cases, as when a patient is simply *stunned*, recovery takes place quickly and perfectly without any medical interference. Why should not this be the case with the more prolonged cases, in which the stunning effects of the injury last considerably longer? Indeed, I do not know why it should not; and I believe that in the great majority of cases this state of coma passes off spontaneously, just as it does in the slighter cases.

Are we, then, in cases of concussion of the brain, to content ourselves with looking on, and to do nothing? I believe that the opinion is rapidly gaining ground that this expectant method,—this system of non-interference,—is the best. Upon this point, however, I speak with diffidence, and must refer it to the great original authorities. I shall only add, that most of those with whom I have conversed on this subject have expressed themselves most favorable to this plan. Among them I may especially refer to my friend and neighbour Mr. Bransby Cooper, whose large experience at Guy's Hospital entitles his opinion to great weight. In conversation upon this subject, he likened the state of coma after concussion to a state of sleep which has a distinctly reparative object and effect.

Then do I advise absolutely nothing to be done in these cases? My advice is, to attend to the functions,—relieve the bowels by mild means, support the system without stimulating the patient, unless great debility calls for more active support; and, that we may not appear to the friends of the patient to be absolutely inactive, shave the head, apply cold to it, or, if there be no contra-indication, apply a small blister now and then.

Formerly, all these patients used to be bled, almost as a matter of course, and with the view of anticipating the inflammation which it was expected would follow upon reaction after the shock. But this idea of inflammation following reaction rests upon no good ground: it was suggested by the occasional occurrence of delirium after this form of coma, the delirium being supposed to indicate a state of inflammation. We now know, however, that delirium is by no means a certain indication of inflammation, within the cranium, and more especially delirium arising out of coma. Delirium *passing into* coma would be a more likely indication of an inflammatory affection.

It may be asked, are there no circumstances which justify bleeding in cases of traumatic delirium? I cannot take upon myself to answer this question in the negative. I do not, however, say that it appears to me a very unmeaning practice to bleed in *anticipation of* inflammation; and that we should wait for some decided symptom, some good evidence of inflammation or of congestion, before we subject our patient to the risks which arise out of the loss of blood.

Treatment of epileptic coma.—The epileptic coma is the most common form of coma we meet with; and here, likewise, the expectant mode of treatment, with moderate purging, answers better than any other. This condition presents many analogies to the traumatic coma. The brain experiences a shock from the epileptic discharge. The shock is generally followed by a longer or shorter sleep, from which the patient

awakes up relieved, and often with no other symptom than a feeling of exhaustion. We do not find that anything cuts short the attack. Bleeding depresses the heart's action, and is favorable to the development of the epileptic state, and therefore it cannot tend to cut short the coma.

Epileptic coma, like traumatic coma, may go on for a very considerable time, and yet the patient will perfectly recover. As an instance of this kind I will refer to the case of Eliza Williams, a girl of 13 or 14 years of age, who was admitted into Augusta ward on the 26th of March last, in a state of profound insensibility, which continued till the 30th, a period of four days, and for a week afterwards in a less profound degree.

In this case the treatment was of the expectant kind. We kept this patient's bowels open, and attended to her general nutrition, taking care to avoid any causes which might operate injuriously on her. She recovered perfectly; had several epileptic fits afterwards, with coma of very short duration, and left the hospital much improved in her general condition.

There are, however, cases of coma in which more active treatment than this is required; as, for instance, in cases of coma arising from poisoning by urea, in diseased states of the kidney. In such cases it is very necessary to do something more than watch; your treatment must be of the eliminating kind, such as blistering and purging; at the same time, it is necessary to uphold the powers as far as the digestive organs will admit. When we have reason to believe that the blood is poisoned by urea, as in renal disease, we shall frequently find the hot-air bath of service; and we must give drastic purgatives, such as elaterium, or the compound powder of jalap, or the Iberis amara. In fine, as a general rule in the treatment of the comatose state which does not arise from pressure, it must be borne in mind, what I think I have made out in the foregoing,—namely, that delirium is the slighter degree, and coma the more aggravated condition of the same state; hence, in a great measure, the treatment of the two conditions must be similar; for coma and delirium differ from each other in degree, the former being only an advanced stage of the latter affection.

SECT. III.—DISEASES OF THE RESPIRATORY SYSTEM.

Art 15.—*On the comparative value of the Diagnostic Signs of Pneumonia.* By Professor Alison.

(*Edinburgh Monthly Journal*, Aug. 1850.)

[The following valuable observations occur in the course of a clinical lecture on some cases of pleurisy and pneumonia:]

As to the special indications of peripneumony, whether with or without attending pleurisy, I think we shall find the most important

and practically useful to be that given by the *sputa*—i. e., the appearance of tenacious and at first translucent sputa, thoroughly *stained* with blood, and thereby acquiring a considerable variety of colours in different cases, the reasons of which variety I do not pretend to know,—rusty, pink, purple, dark yellow, or greenish,—all to be regarded as inflammatory; but the darker coloured, or more opaque, being generally the indication of the more advanced stage of inflammation. The *crepitous râle* is in some cases very distinct and satisfactory, but in many it is unperceived, or if perceived is faint and of short duration in the early stage of the disease, while it may be of long standing in the advanced stage, and during the convalescence; and in some it is not easily distinguished from the somewhat coarser sound of the subcrepitous râle, which may depend on conditions in the lungs, or minute branches of the bronchial, very different from inflammation. On these accounts, this symptom has never seemed to me to realize the very natural hopes of Laennec, as to its practical usefulness in detecting pneumonia, when not otherwise indicated.

The other indications that we have of peripneumony by auscultation and percussion—dullness on percussion, bronchial sound, respiration, or its complete suppression, and imperfect expansion of the affected side—are rather, in fact, what may be expected, and can hardly be distinguished from the effects of attendant pleurisy, so frequently complicating that disease.

In regard to all those physical or local symptoms of peripneumony, this observation, I am sure, we shall find practically important, that although we may rely much on them, particularly when grouped together, and watched in their progress, as indicating the *nature* of the disease, we cannot rely on them at all as indicating its *intensity*, its *probable tendency*, or the *extent* to which antiphlogistic remedies during it are demanded, or can be safely employed.

Take, for example, the pneumonic sputa,—they may be seen in full perfection in cases which are partial and slight, or which are attended with extreme debility, demanding stimulants; and may be absent in cases which are extensive and urgent, and will bear full evacuation. I remember having two young men—both previously in good health, and seen early—under my care at the same time, in pneumonia; in one of whom we had the translucent sputa almost from the first, exactly resembling red-currant jelly, but he was so feeble that he became faint the first time I set him up to examine his chest; and, although I thought it right to take some blood from him, he did not lose ten ounces, generally or locally. In the other, we never saw any tinge of blood in the sputa, but the other symptoms were well marked and urgent, and he bore four full general bleedings perfectly well; the blood was sizy, and the symptoms were relieved, as usual, after each bleeding. Both these patients recovered perfectly well; and, judging by the progress of the cases,—especially as regarded the state of the vital functions, the pulse, and breathing,—we had no reason to regret, either that the first was so little, or the second so fully bled; but if we had trusted to the sputa as indicating the nature and intensity of the disease, we should have thought that the first demanded the full antiphlogistic treatment, and the last little or none. And I have

seen several, in which the peripneumonic sputa were peculiarly well marked, which I have thought it necessary to treat, from the time I first saw them (late in the disease), by stimuli only, and which have recovered remarkably well.

Again, as to the crepitous râle, I have seen many cases which seemed to me well marked by all the other symptoms, and which have done well, generally, under the antiphlogistic treatment, in which I never could detect that symptom; and others, in which I was quite satisfied of its existence and extension through the lungs, while the other symptoms have either continued so mild, or been of such a nature, that no active antiphlogistic practice has appeared to be demanded or justified by that extension, and the whole symptoms have subsided without them. Particularly since I read the statements of Louis, as to the extension of the crepitous râle through the lungs, notwithstanding full bleeding, by which the pulse had been brought down,—from which he inferred, that the idea of the power of bloodletting over inflammation had been a mistake,—I have attended to this point, and satisfied myself that he was quite correct as to the fact, but wrong as to the inference,—I mean as a general principle; because, in these circumstances, when the pulse and breathing have decidedly improved, although the râle may indicate that the inflammation continues and extends for a time, we may be very confident that it will subside without further treatment. The reason probably is, that the inflammatory exudation, although extending, is modified in character, and so attenuated as to be easily re-absorbed,—so that no complete obstruction, or permanent disorganization of the pulmonary substance, to any injurious extent, is effected. In these circumstances, all that is required is, to watch the patient carefully, and revert immediately to the bleeding, or other antiphlogistic treatment, if the breathing becomes again more oppressed, and the pulse more frequent or *firmer;* under the conviction, given by experience, that the crepitous râle extending through the lungs in a case of recent illness, and in connection with a frequent and full pulse, and a laboured state of the breathing, implies much danger, which may be averted by such treatment; but that the same râle extending through the lungs, in connection with a more natural pulse, and an easy state of the breathing, or with dyspnœa, but a feeble or soft pulse, and damp livid skin, either implies no danger, and demands no active treatment, or is to be counteracted by very different remedies. And I may add, that this is exactly the line of conduct which our predecessors would have advised in those circumstances, before the crepitous râle was heard of, although they could not have spoken with so much precision as we can, of the nature of the changes then going on in the lungs.

Art. 16.—*Tabular View of the Symptoms of Phthisis.* By Dr. John Hutchinson.

(*Medical Times*, Aug. 1850.)

Symptoms of Pulmonary Consumption.

Diagnosis

- **General Diagnosis**
  - Hereditary predisposition ..... Father. Mother. Brother. Sister.
  - Collateral signs commonly present ..... Cough. Expectoration. Hæmoptysis. Diarrhœa. Night sweats.
- **Particular Diagnosis**
  - Weight ..... Loss of weight.
  - Thorax
    - Form ..... Shoulders round and stooping. „ points turned forwards and inwards.
    - Mobility ..... Diminished vital capacity. Limited symmetrical breathing. Non-symmetrical breathing.
  - Lungs
    - Percussion ..... Doubtful—dull—very dull.
    - Morbid respiration
      - Conditions affecting volume.
        - Intensity ..... Strong or aggravated. Feeble or deficient. Absent or suppressed.
        - Rhythm...
          - Frequeney ... Frequent. Quiek. Slow.
          - Continuance... Jerking—interrupted. Difficult.
          - Duration ..... Long. Short. Expiration prolonged.
        - Character ..... Harsh. Bronchial. Cavernous.
      - Conditions depending on morbid secretions.
        - Dry sounds ..... *Sibilus in small tubes. *Rhonchus in large tubes. Dry crackle—crude tubercle.
        - Moist sounds ..... *Fine crepitation—Pneumonia. *Small do. Capillary bronchi. *Large do. Bronchitis in large tubes. Cavernous gurgle. Humid crackle. Softened tubercle.
    - Voice ..... Increased resonance, Bronchophony, Pectoriloquy, Hoarse or absent. } Increased density of the lung.

Art. 17.—*The use of Nux Vomica in Hay Fever.* By Mr. G. T. Gream.

(*Lancet*, June 8th.)

Mr. Gream says that this drug has considerable influence over hay fever. He states that it remedies the distressing sneezing preceded by irritation of the Schneiderian and conjunctival mucous membranes.

He has for three years taken it himself, with decided effect, and has in the same period frequently prescribed it for others. The preparation he uses is the mixture of the Dublin Pharmacopœia, of which he gives ten drops, gradually increased to twenty, three times a day. He also applies an ointment of Goulard's extract, one drachm and a half to two ounces of spermaceti cerate, high up the nostrils.

Art. 18.—*On the Diagnosis of Intra-Thoracic Cancer.* By Dr. A. Kilgour.

(*Edinburgh Monthly Journal of Medical Science*, June, 1850.)

[The paper from which we make the following extract is chiefly occupied by the narration of cases of intra-thoracic cancer, but as the diagnosis is the most important part of the history of the disease, we limit our selection to that point:]

The diagnosis of the internal disease may be made from more or less of the following particulars:

1. The individual is past the middle period of life.
2. He has much of the haggard and dirty sallow countenance of malignant cachexia.
3. The pulse is quick, generally over 100, and some difference will be found in the pulsations of the carotid and the radial of the side affected, as compared with the other.
4. There is more or less cough, generally ringing, short, and dry; in other cases attended with sputa, but I have never seen the "red-currant jelly," as described by Stokes.
5. There is more or less dyspnœa, and paroxysms like angina. Tightness of the chest, huskiness, loss of voice, and dysphagia, are also present late in the disease.
6. The appetite is more or less impaired, and if the liver or pancreas or pylorus be affected with the same disease, tuberose swellings will be detected by manipulation.

The physical signs will be:

1. The puffy swelling, or hard tumour in the neck. If no swelling be found there, an examination should be made, to ascertain whether any signs of disease exist in the glands of the groin, axillæ, or testes, and the region of the liver and abdomen should be carefully manipulated.
2. Dullness on percussion, on one side, most distinct under the clavicle, and extending more or less downwards; the dullness unaffected by change of posture.
3. Absence of respiration over the seat of the dullness, while it is heard faintly behind and below.
4. No vocal fremitus over the affected part of the chest.
5. The part is not so freely moved in respiration, as the corresponding part of the opposite side.
6. If the disease be on the left side, more than usual pulsation may be observed between the first and second, or second and third ribs, while the beat of the heart in the precordial region is weak and distant.

There may also be a bellows' sound, or the to-and-fro sound of pericarditis.

The diseases with which the disease is liable to be confounded are laid down by the author as pneumonia, tubercular deposit, pleuritic effusion, and aneurism.

Acute pneumonia, he observes, is generally readily known,—as is also tubercular consolidation, by the cough and expectoration, and stethoscopic signs, together with the history and appearance of the patient.

Pleuritic effusion is seldom confined to the upper part of the chest. Aneurism is the most difficult to distinguish, but the diagnosis is simplified, by recollecting that in aneurism the pulsation, when present, is more distinct, and that the dullness is less in proportion, while in cancer the dullness is extensive, the cough is peculiar, and the superficial veins of the thorax and neck are tortuous and distended.

Art. 19.—*Relation between Asthma and Angina Pectoris.*

[In the 'American Journal of the Medical Sciences,' Dr. Kneeland draws the subjoined parallel between the two diseases:]

Both come on by sudden paroxysms, at irregular intervals. In both there is a sense of painful constriction and suffocation, of epigastric tension with eructations, yawnings, coldness and paleness of the face, the pulse comparatively unaffected, difficulty of speaking, the health good in the intervals, until the arrival of secondary causes of dyspnœa (usually emphysema, or other symptomatic asthma). Both are alike brought on and influenced by atmospheric changes; by the action of a cold dry wind; by mental emotions; perhaps also by hereditary predisposition. Both have been ascribed to the same lesions of the respiratory and circulating systems, even to ossification of the costal cartilages, coronary arteries, and cardiac valves; both are relieved by the same treatment—narcotics, antispasmodics, and revulsives. Many cases of angina are recorded in which symptoms of asthma first appeared and disappeared in the course of the disease: viz., fits of nightly suffocation, after the first sleep, which compelled the patient to fly to an open window for relief.

The differences between angina and asthma may be explained by the different functions of the filaments of sensation and motion in the par vagum. In asthma the dyspnœa is more characteristic than pain; every muscular power is brought into action to introduce air into the lungs; the diaphragm and pectorals contract convulsively; the desire for air is extreme, and the patient seems continually on the point of suffocation. During the paroxysm there is more or less absence of the respiratory sounds, from the difficulty the air finds in entering the pulmonary vessels; hence the violent and noisy laryngeal respirations. When the fit ceases there is copious expectoration, with mucous râles, and cough. The muscular fibres of the bronchi and their ramifications are animated by the spinal accessory nerve; the dyspnœa of asthma depends on the spasmodic contraction of these fibres, the partial obliteration of the air-passages requiring violent respiratory efforts to

secure the necessary introduction of air; in this constriction the larynx is involved, as evinced by the whistling of the inspirations; the non-introduction of air into the pulmonary vesicles accounts also for the diminution or even absence of the respiratory murmur.

Provincial Medical Journal.

SECT. IV.—DISEASES OF THE CIRCULATORY SYSTEM.

Art. 20.—*Practical Remarks on Disease of the Heart, and the Consecutive Dropsy.* By Dr. Kilgour.

(*Edinburgh Monthly Journal*, Sept. 1850.)

[After some pertinent remarks on the diagnosis of cardiac disease, the author proceeds as follows :]

If any one were to ask me "What can you do to cure disease of the heart?" I would honestly answer, "Nothing." But if I were asked, "What can you do to ward off the symptoms?" I would say that next to quietness of mind and body, low living, and equable temperature, I know nothing to equal small doses of Vinum Colchici, weak saline purges, and a seton over the region of the heart.

It has often been doubted whether blood should be drawn in advanced heart diseases in elderly persons when labouring under a sudden paroxysm of violent dyspnœa. No doubt mustard poultices over the heart, and the immersion of the feet and legs in hot water, will give some relief; but no remedy will be found equal to abstracting a small quantity of blood from the arm, or from two to four ounces.

In the treatment of cardiac dropsy every practitioner has his favorite remedy, chiefly of a diuretic or purgative character. Of the former, I have found the following combination the most efficient :

℞ Infusi digitalis, ℥iv ;
Acetates potassæ, ʒij ;
Sp. æth. nitric., ʒij ;
Aquæ cassiæ, ℥iss ;
Capiat cochl. magnum 4ter. quaque horâ.

At last there comes an attack, in which this and other diuretics cease to act, and we must then fall back upon purgatives. Of the latter, the most powerful is elaterium, given in the following manner :

℞ Elaterii, gr. j ;
Extr. colocynth, c. ℈ij ;
Extr. hyoscyam. grs. xij ;
M. divide in pil. xij ;
Sumat unam nocti maneque.

It is the opinion of some that elaterium acts as a diuretic. Dr. Adams, of Banchory, prescribes a formula, which acts powerfully by stool and diuresis, but it is apt to produce sickness. It is as follows :

℞ Elaterii, grs. ij ;
Sp. æth. nitric., ʒij ;
Tinct. scillæ, oxymel colchici, āā ʒss ;
Capiat drachmum ter. quaterne indie.

The combination of a bitter with a saline purgative with a vegetable base, is, in the author's experience, better than any single purgative. The old compound jalap powder is one of this class. The infusion of senna and bitartrate of potass is also a valuable formula. The preparations of mercury have not answered in the author's hands.

There comes a time in the treatment of cardiac dropsies when not only diuretics, but purgatives, cease to keep the anasarcal in check. In such cases another mode of treatment often proves palliative,—viz., puncturing the lower extremities. There are two modes in which this may be done—either by the lancet or a stout needle. But in both there is the danger of enpebelatous inflammation, which may extend up the limb, and ending as sphacelus, destroy the patient. But if one or two punctures only are made, this untoward event is not apt to occur. In case it does, the author advises evaporating lotions. The older physicians performed this operation as a "dernier resort," but it is now recommended much earlier in the disease, and the chances of success are said to be greater before the strength of the patient is exhausted and the vitality of the limb impaired.

Art. 21.—*On the Diagnosis of Anæmic and Organic Murmurs.* By Marshall Hughes, m.d., Physician to Guy's Hospital.

(*Guy's Hospital Reports*, vol. vii, part i, Oct. 1850.)

[In this volume of the 'Guy's Hospital Reports,' is a valuable practical paper on "Anæmic Murmurs and their Diagnosis." In treating the subject, the author considers,—1st, the practical importance of the subject; 2d, the signs and causes of anæmic murmurs; 3d, venous murmurs; 4th, the diagnosis of anæmic and organic murmurs; and, lastly, gives several illustrative cases. The whole of this paper is well deserving the most attentive consideration; but as our space does not admit of the whole, we give an abstract of the most practical portion in the fourth division, or that of diagnosis.]

1. It is obvious that persons suffering from diseased heart are liable to anæmia as well as others; the general indications, therefore, of poverty of blood, cannot be conclusive that a murmur is anæmic. The symptoms of anæmia are not, however, to be neglected, for though sometimes present in organic disease, they are rarely absent in the more trivial one.

2. Seeing that young persons, particularly women, are the especial subjects of the anæmic murmur, and that they seldom have organic disease, unless congenital, or the result of rheumatism—the lack of evidence as to congenital disease of the heart, or as to the pre-existence

of rheumatism, becomes most important in determining the nature of a murmur, which is supposed to be anæmic.

3. When an obvious obstruction exists to the progress of the blood, a certain degree of celerity in the stream is necessary in order to produce sound; but the celerity necessary to produce sound when no obstruction exists, is much greater. An organic murmur is, therefore, producible, when an anæmic sound is not; and while the former is often heard with a frequent jerking pulse, the latter, as far as the author's experience goes, is never heard with a soft and slow one. The frequency and vibratory character of the pulse may, therefore, be regarded under certain circumstances as an aid to diagnosis.

4. Organic murmurs are produced by persistent physical obstruction, or by the valves being so contracted as to allow regurgitation. By such obstruction, or regurgitation, the pulse at the wrist is weakened, as compared with the venticular impulse. But in anæmia, without persistent physical obstruction, the pulse coincides exactly with the heart's impulse. It is hence obvious, that a want of due relation between one and the other is indicative of organic disease, as the existence of a due relation is characteristic of functional disorder.

5. Organic diseases of the valves are more common in persons advanced in life. Anæmic murmurs are chiefly observed in the young.

6. The venous hum, or "bruit de diable," is a pure result of anæmia; but as anæmia may coexist with organic disease, it is only indicative of a watery condition of the blood. It proves the existence of anæmia, but does not disprove the presence of organic disease. It is therefore only an auxiliary means of diagnosis.

7. Valvular murmurs, if arising from the mitral valve, are heard most distinctly below the nipple, and are audible in the axilla, and often in the back in the left interscapular region; if dependent on the tricuspid valve, they are most distinctly audible at the bottom of the sternum, *situations in which the anæmic murmur is never heard.* Murmurs depending upon thickening of the aortic or pulmonary valves are heard, it is true, very much in the same situation as the anæmic murmur; but chronic disease of the pulmonary valves is exceedingly rare, especially without more extensive disease in the mitral and aortic valves, and the murmurs from the aortic valves are propagated upwards in the course of the vessel. In the author's experience, this is not the case in murmurs from simple anæmia; the extremely local character, therefore, becomes a valuable diagnostic sign of an anæmic murmur.

8. The anæmic murmur may also be mistaken for a sound induced by roughness of the pericardium or pleura. From this it may be distinguished by the sound from the latter cause remaining the same in all states of the circulation, by the absence of the ordinary signs of anæmia, and by the sound being increased during inspiration.

To render the diagnosis more clear, the author tabulates the respective signs as follows :—

Anæmic Murmurs.	*Organic Murmurs.*
1. The anæmic condition necessary.	1. The anæmic condition occasional, not necessary.
2. Congenital disease or rheumatism in young subjects almost necessarily excluded.	2. Congenital disease or rheumatism in young subjects almost necessarily included.
3. Absent while the pulse is slow.	3. May be present while the pulse is slow.
4. The pulse corresponds in volume, &c. to the heart's impulse.	4 The pulse does not correspond with the heart's impulse.
5. Almost exclusively confined to the young.	5. Most common in advanced age.
6. Venous murmur generally combined.	6. Venous murmur absent unless combined with anæmia.
7. Confined to the vicinity of the aortic valves.	7. Not confined to the vicinity of the aortic valves.
	Sound from Pericardial or Pleuritic Roughness.
8. Audible at all times during the ventricular systole, if the pulse be frequent and vibrating.	8. Audible only, or chiefly during inspiration, and irrespective of the pulse.
	Arterial Murmur from Diseases of the Lung or Pleura.
9. Equally audible both in inspiration and expiration.	9. Audible only, or chiefly in inspiration.

ART. 22.—*On the Symptomatological Value of Palpitation.* By Dr. O. B. BELLINGHAM.

(*Medical Gazette*, Oct. 4, 1850.)

Dr. O. B. Bellingham thus contrasts palpitation arising from organic disease of the heart, and that independent of it.

Palpitation depending upon Organic Disease of the Heart.	*Palpitation independent of Organic Disease of the Heart.*
1. More common in the male than the female.	1. More common in the female than the male.
2. Palpitation usually comes on slowly and gradually.	2. Palpitation usually sets in suddenly.
3. Palpitation constant, though more marked at one period than at another.	3. Palpitation not constant, having perfect intermissions.
4. Impulse usually stronger than natural; sometimes remarkably increased, heaving, and prolonged; at others irregular and unequal.	4. Impulse neither heaving nor prolonged; often abrupt, knocking, and circumscribed, and accompanied by a fluttering sensation in the præcordial region or epigastrium.

5. Percussion elicits a dull sound over an increased surface, and the degree of dullness is greater than natural.	5. The extent of surface in the region of the heart, which yields naturally a dull sound on percussion, is not increased.
6. Palpitation often accompanied by the auscultatory signs of diseased valves.	6. Auscultatory signs of diseased valves absent; bruit de soufflet often present in the large arteries, and a continuous murmur in the veins.
7. Action of the heart regular, irregular, or intermittent; not necessarily quickened.	7. Rhythm of heart usually regular; sometimes intermittent; its action generally more rapid than natural.
8. Palpitation often not much complained of by the patient; occasionally attended by severe pain, extending to the left shoulder and arm.	8. Palpitation often much complained of by the patient; more readily induced by mental emotion, and frequently accompanied by pain in the left side.
9. Lips and cheeks often livid; countenance congested; anasarca of lower extremities common.	9. Lips and cheeks never livid; countenance often chlorotic; anasarca absent, except in extreme cases.
10. Palpitation increased by exercise, by stimulants and tonics, &c.; relieved by rest, and frequently also by local or general bleeding, and an antiphlogistic regimen.	10. Palpitation increased by sedentary occupations; by local and general bleeding, &c.; relieved by moderate exercise, and by stimulants or tonics, particularly the preparations of iron.

[The influence of the coronary circulation in producing palpitation is much insisted on by the author. He says:]

In considering the immediate cause of palpitation, writers do not appear to me to have taken sufficiently into account the coronary circulation, although there can be no doubt that it performs an important part, and that derangement of its circulation will be followed by derangement of the functions of the heart equally as when the circulation through the chambers of the organ is impeded or deranged.

The integrity of a muscle, and its healthy action, depend mainly, we know, upon its receiving a due supply of arterial blood; if this is sufficient, and of a good quality, the functions of the muscle will be performed with vigour; while, if the supply is too small, or if its quality is deteriorated, the functions of the muscle will be impaired. Now, the heart being a muscular viscus, requires, for the vigorous performance of its functions, an efficient supply of arterial blood: hence, although the blood which circulates through the chambers of the heart is the ordinary stimulus to the contractions of the organ, if the coronary arteries which convey the materials for its nutrition carry it in sufficient quantity, or of a deteriorated quality; or if, on the other hand, it is conveyed in increased quantity, or is of too stimulating a quality, the functons of the organ will suffer.

Thus, in anæmia, the quality of the blood being deteriorated, and a given amount containing less of the materials of nutrition, it is necessary that a greater quantity should pass through the coronary vessels in a given period, and the action of the organ is accelerated in order to compensate for the deficiency. Again, in states of plethora, where blood is rapidly formed, the heart is excited to increased action, very probably in consequence of the stimulant nature of the blood which circulates in its vessels, and its increased amount.

Lastly, in cases of valvular or other disease of the heart, where considerable obstruction exists in the pulmonary circulation, and the venous blood does not undergo the necessary changes in the lungs, the coronary arteries will convey a mixture of venous and arterial blood to the tissue of the heart ; the functions of the muscle become impaired, its irritability diminishes, and it is no longer obedient to the stimulus of the blood which distends its cavities : hence its action becomes irregular and unequal ;—indeed, in the advanced stage of valvular or other disease of the heart where the pulmonary circulation is greatly impeded, the cessation of the heart's action, and the death of the individual, is probably owing immediately, in many cases, to the coronary arteries conveying venous blood to the tissue of the heart.

Before dismissing the subject of palpitation, I may observe, that this symptom frequently is present in a marked degree in the class of patients who present themselves at hospital, without their appearing to be conscious of it. When questioned, they allow that they feel some oppression in the præcordial region, but hardly admit that it amounts to palpitation, though, when we come to examine the chest, the action of the heart is often much increased, and its impulse sometimes so strong as to raise the head of the observer. This, no doubt, arises in some measure from the sensibility being blunted by the ill oxygenation of the blood, and in some measure, also, from the parts having had time to accommodate themselves to their altered condition. On the other hand, it is no less remarkable how often, when palpitation depends simply upon functional derangement, the patient's attention is directed mainly to it ; he is most unhappy in consequence, and can scarcely be made to believe that he is not the subject of organic, and therefore, in his opinion, of incurable disease of the heart.

Art 23.—*On "Bruit de Soufflet"* By Dr. O. B. Bellingham.

(*Medical Gazette*, Aug. 23, 1850.)

[We extract the following from a valuable series of clinical lectures delivered at St. Vincent's Hospital, Dublin.]

Circumstances under which Bruit de Soufflet is heard.—Bruit de soufflet is heard in various and different lesions of the valves and orifices of the heart; it is not, however, limited to diseased states of this organ, but becomes audible under a variety of other circumstances. Thus, it is heard when there is any obstacle to the free passage of the blood through the orifices of the left side of the heart, or when the valves imperfectly perform their functions, and

permit regurgitation. It is heard in aneurism of the left ventricle and in congenital malformations of the heart, where a communication exists between the ventricles. It is heard in cases where the lining membrane of the arch of the aorta is diseased, and in aneurism of all the large arteries. It is heard in aneurismal varix, where a communication exists between an artery and a vein, in varicose aneurism where a small sac exists between them, and in the pulsating form of aneurism by anastomosis. It is frequently heard in cases where no disease of any kind exists in the heart or arterial system, but where the quality of the blood is altered; where this fluid has become more watery and less viscid than natural. Finally, it can be developed at any time in the heart and arteries by suddenly abstracting a large quantity of blood, as was first pointed out by Dr. Marshall Hall; or in a large artery, by making pressure upon it so as to diminish its caliber.

Bruit de soufflet may be developed in the cavity of the chest by the growth of a tumour of any kind, which comes to press upon the aorta or its branches, or upon the pulmonary artery; or by malformation or deformity of the chest, owing to disease of its bony parietes, by which the heart's movements are impeded, or the large vessels are compressed. Bruit de soufflet is said to have sometimes been heard for the first time, a short period previous to death, in the advanced stage of pulmonary or other diseases; M. Bouillaud refers it then to the formation of fibrinous concretions in the cavities of the heart, which interfere with the action of the valves, or obstruct the orifices. It is temporarily heard in violent palpitation in hysterical subjects, or in attacks of palpitation in cases where the left ventricle is hypertrophied, and its cavity dilated; here it disappears as the palpitation subsides. Bruit de soufflet, in a very marked form, is likewise heard from the fourth month to the end of pregnancy; here its site is usually the iliac fossa, sometimes on both sides, more frequently only on one side.

Dr. Graves ('Clinical Lectures,' vol. ii) has noticed the remarkable fact, that a bruit de soufflet is sometimes audible, in the second stage of pneumonia, over the affected lung, which disappears as the symptoms of the inflammation subside; it is not perceptible in the subclavian or carotid arteries of the same side, and probably, when present, depends upon pressure on the branches of the pulmonary artery. Dr. Latham has called attention to the circumstance, that a gentle bruit de soufflet, which coincides with the ventricular systole, is heard occasionally in phthisis; it is not perceived in the præcordial region, but in a circumscribed space above it and on the left side. M. Zehetmayer has confirmed the correctness of Dr. Latham's observation, and would appear to have noticed this murmur previous to the publication of Dr. Latham's work. Dr. Latham supposes that this murmur may have its cause in the pressure exercised by the diseased lung upon the pulmonary artery, and its first branches. In both the latter cases, the condensed lung, having become a better conductor of sound, conveys a murmur to the ear which would probably be inaudible if the lungs were healthy. M. Gendrin has called attention to the circumstance that, in the cold stage of intermittent fever, a bruit de soufflet,

analogous to that heard in cases of chlorosis, is audible on auscultation of the heart. As individuals who have been the subject of ague for any length of time are, however, in general more or less anæmic, the murmur is probably due to this cause.

Conditions under which Bruit de Soufflet is developed.—Whenever bruit de soufflet is heard in the heart, it arises either from contraction or some other diseased state of the orifices or valves of the heart, which impedes the free passage of the blood; or from a condition of the valves which prevents them from closing the orifice, and permits regurgitation; or from the blood being impelled with increased force and velocity through the aortic orifice, or through an abnormal orifice, as in aneurism of the left ventricle, and congenital malformations of the heart; or from some alteration in the quality of the blood itself, or in its quantity; or from the formation of fibrinous or other concretions in the cavities of the heart, which interrupt the play of the valves, or impede the orifices; or where morbid growths are developed in the cavity of the chest, which compress or displace the heart; or where the bony walls of the thorax are deformed, and the cavity is much narrowed.

Whenever bruit de soufflet is audible in the arteries, it arises either from roughness of the lining membrane of the vessel; or from the caliber of the artery being diminished, owing to pressure upon the part; or from an altered condition of the blood; or from an aneurismal sac springing from a large artery; or where an abnormal communication exists between a large artery and a vein; or where an aneurismal sac is seated between an artery and a vein, through which the blood passes from the one to the other.

Bruit de soufflet is therefore a symptom in endocarditis, where the aortic or mitral valves are swollen, thickened, or indurated; or where vegetations form upon them, or upon the orifices; as well as in the chronic forms of disease of the valves or orifices, accompanied by contraction of the orifices, by ossific or other deposit upon the valves, or adhesion of the valves to one another or to the parietes. It will likewise be heard in cases where rupture of a valve or of a tendinous cord takes place, as well as in cases of congenital malformation of the valves, one of the most frequent of which is a cribriform condition of their curtains. Bruit de soufflet is likewise a symptom in dilatation of the orifices of the left side of the heart, without any disease of the valves, or where they are prevented by any other cause from perfectly fulfilling their functions. It is a symptom in aneurism of the left ventricle; in congenital malformations of the heart; in cases of morbid growths in the cavity of the thorax; in aneurism of all the large arteries; in aneurismal varix, and varicose aneurism; in disease of the lining membrane of the arch of the aorta; and, finally, in an anæmic state of the system, whatever be its cause.

Mechanism of production of Bruit de Soufflet.—Laennec attributed bruit de soufflet to spasm, or to a vibratory action of the heart; Bertin, to the increased friction produced by the passage of the blood through a contracted orifice. Other physiologists have endeavoured to explain it by referring it to increased velocity of the circulation, or to very energetic action of the heart, or to "a certain resistance given

to the blood moving with a certain force." Others have referred it to modifications or alterations in the tissue or structure of the parietes of the heart, or to morbid conditions of the blood itself. M. Bouillaud is of opinion that bruit de soufflet may be produced under three conditions: viz., increased action of the heart; narrowing of any portion of the canal through which the blood passes; or roughness of the surface over which the blood flows. Dr. Corrigan,* who has written at length upon this subject, and who made several experiments with the object of determining the question, arrived at the following conclusion respecting the conditions necessary for the production of this sound:

"1st. A current-like motion of the blood (instead of its natural equable movement) tending to produce corresponding vibrations in the sides of the cavities or arteries through which it is moving;" and—

"2d. A diminished tension of the parietes of the arteries or cavities themselves, in consequence of which their parietes are easily thrown into vibrations by the irregular current of the contained fluid; which vibrations cause, on the sense of touch, frémissement,—and, on the sense of hearing, bruit de soufflet."

In every instance in which bruit de soufflet is audible, it is clear that some physical agent, capable of producing it, must be in operation; now the only physical agent that is invariably in operation, and under every variety of circumstances where bruit de soufflet is heard, is increased friction between the blood and the parts along or through which it passes; which appears to be amply sufficient, not only to develope murmurs, but to convert the normal sounds of the heart into them. Thus:

1. When the orifice of the aorta is contracted, or its valves are diseased, so as to impede the direct passage of the blood, there must necessarily be increase of friction; and the normal first sound of the heart will be converted into a murmur.

2. When the mitral valve is diseased, and permits a refluent current of blood into the left auricle at each ventricular systole, a murmur will be developed, which, from its louder tone, will obscure or render inaudible the first sound of the heart.

3. When the similunar valves of the aorta imperfectly close the orifice, the blood must regurgitate from the aorta into the left ventricle at each ventricular diastole; and that this occurs with sufficient force to generate a murmur, which obscures or renders inaudible the normal second sound of the heart, is well known.

4. When the left auriculo-ventricular orifice becomes dilated, and the valve cannot, from this cause, fulfil its function perfectly, regurgitation of the blood occurs at each ventricular systole, and a bruit de soufflet is developed, which is usually sufficiently strong to obscure the normal first sound of the heart.

5. When the blood is propelled with greatly augmented force, and with increased velocity, through the aortic orifice, the amount of friction between the blood and the parietes of this orifice must be much increased; and if it is sufficiently strong to generate a murmur,

* Dublin Journal of Medical Science, vols. x and xiv.

this will have the characters of bruit de soufflet, and will take the place of the normal first sound of the heart.

6. When the lining membrane of the ascending portion of the arch of the aorta loses its natural smoothness and polish, the friction between the blood and the part along which it passes must be increased; and, if the heart's action is strong, a murmur will be developed, which will be synchronous with the first sound of the heart, and will often be audible in the large vessels which come off from the arch of the aorta.

7. When the viscidity of the blood is diminished, and its watery parts are increased, a greater amount of friction will take place between this fluid and the orifice of the aorta, in its passage out of the ventricle, as well as in the large arteries, which is usually quite sufficient to convert the normal first sound of the heart into a murmur.

8. When the blood is propelled into an abnormal cavity, or through a preternatural orifice, and the action of the left ventricle is strong, the friction will be sufficient to generate a murmur which will obscure the first sound of the heart.

9. When the large arteries in the cavity of the thorax are compressed by the growth of a tumour within, or by deformity of the bony cavities from disease without, the diminution of their caliber is often sufficient to generate a murmur, which will have the character of bruit de soufflet, and will be heard at the period of the ventricular systole.

10. When lymph is deposited about the valves or orifices of the heart in sufficient quantity to prevent the action of the valves, or to obstruct the passage of the blood, there will necessarily be increased friction, usually sufficient to develope a murmur which may replace either the first or the second sound of the heart, or both.

11. When the fibrine separates, in the cavities of the heart, from the other constituents of the blood, and obstructs the orifices or impedes the action of the valves, if the action of the heart was strong, sufficient friction would be produced to develope a murmur; but as this scarcely ever occurs, except during the last few hours or days of life, the current of blood is generally too feeble to develope a murmur.

12. The bruit de soufflet heard after the fourth month of pregnancy, which is not audible until the uterus has risen out of the pelvis, and which is generally known under the name of the "placental soufflet," appears to have its cause in the pressure exercised by the enlarged uterus upon the iliac arteries. Because it always accompanies the ventricular systole, it is audible usually only in one iliac fossa; and an exactly similar murmur has been heard by Dr. Montgomery* in cases where the uterus itself was enlarged from disease, or where an abdominal tumour compressed the aorta. In addition, M. Bouillaud has found that, by changing the position of the patient, the site of the murmur is altered; and Dr. Cowan† observes, that the bruit de soufflet in these cases "can be detected in the femoral arteries immediately below the arch," and that "the sound

* Cyclopædia of Practical Medicine, art. Pregnancy.

† Medical Gazette, vol. xvii, 1836.

may, by change of position, be transferred from one femoral artery to the other, always corresponding with the side of the uterine murmur."

In the majority of the foregoing examples the bruit de soufflet is heard at the period of the ventricular systole, and replaces or accompanies the first sound of the heart; the force with which the blood is propelled by the left ventricle being much greater than that with which it enters it, the friction between the blood and the parts along or through which it passes must be much more considerable in the former than the latter. In the former it is generally sufficient to generate a murmur, in the latter it only occasionally does so; and, when a murmur is developed, it has a different character. For instance, when the mitral valve or orifice is diseased, so as to permit regurgitation, a bruit de soufflet will be heard at the period of the ventricular systole, which quite obscures the normal first sound of the heart; when the aortic valves permit regurgitation, a bruit de soufflet is audible at the period of the ventricular diastole, which likewise obscures the normal second sound of the heart. But the two murmurs are very different; that which accompanies mitral regurgitation is loud, strong, and blowing; that which accompanies aortic regurgitation is soft, feeble, and whispering, because the force with which the blood is propelled out of the left ventricle is so much greater than that with which it enters the same ventricle.

Two or more of the conditions described above are not unfrequently combined in the same subject; and we may have a murmur taking the place of, or obscuring both sounds of the heart; or the bruit de soufflet may pass into a sawing, rasping, or musical murmur; or, finally, the valvular disease may be complicated with an anæmic state of the system, by which the difficulty of the diagnosis is sometimes considerably increased.

SECT. V.—DISEASES OF THE CHYLOPOIETIC SYSTEM.

Art. 24.—*On Perforating Ulcer of the Stomach.* By Cathcart Lees, m.b., &c.

(*Dublin Quarterly Journal of Medical Science*, Aug. 1850.)

The author informs us that, from a careful consideration of cases which have come under his own observation, he concludes that a positive diagnosis of the perforating ulcer of the stomach, particularly in the early stages, is very deficient.

Dr. Abercrombie remarks, that "this affection may run its course, almost to the last period, without vomiting, and with scarcely a symptom except uneasiness after eating, and which subsides a few hours after a meal." Dr. Seymour also says, that "chronic ulcer of the stomach is not to be distinguished by any known signs, unless vomiting of blood, which has followed long-continued symptoms of pain and distress in the stomach, has taken place."

The character of the pain may serve as some guide, as it comes on after even the mildest food. Solid meat causes most distress, but the pain is not necessarily attended with the acidity which is so remarkable in functional disease. We cannot distinguish any hardness or fulness in the epigastric region, nor is there any redness of the tongue indicating that serious irritation is going on in the stomach. In many cases the patients do not lose flesh except the ulcer is large.

Dr. Osborne (see Abstract, Vol. II, pp. 39, 221) is of opinion that the situation of an ulcer is known by the effect of posture in producing or relieving the pain; and thus there is remission of pain as long as the contents of the stomach do not come into contact with the ulcer.

The symptoms of ulcer of the stomach are very slight—often only those of ordinary dyspepsia; but they may be very obscure, or even latent, until hæmatemesis, or symptoms of perforation, reveal the nature of the disease. When the latter occurs, the patient is attacked with severe pain in the epigastrium, not preceded by rigors. The pain spreads rapidly, and when it occurs, as it frequently does, immediately after eating, it may lead to the suspicion of poisoning. There is often vomiting, and death mostly takes place within twenty-four hours.

As to treatment. In the early periods we should, above all things, be careful not to allow the stomach to be distended by any quantity of food or liquid. In fact, patients labouring under this disease should never make a regular meal, but take small quantities of light digestible food. Once the symptoms of perforation have occurred our treatment must be very decided. Perfect rest in the horizontal posture; no food or drink for some days, except a teaspoonful of water occasionally; solid opium to be given in large doses, so that, by its sedative action on the intestines, time may be given for adhesions to form, which will prevent effusion. The powers of the patient may be supported by beef-tea enemata. By these means a chance may be given, if the perforation have not occurred soon after a meal.

Art. 25.—*On Perforating Ulcer of the Stomach.*
By Dr. Ogier Ward.

(*Medical Times*, June 22, 1850.)

[The narrative of a case of the above fatal malady is followed by the subjoined general remarks on its pathology and treatment:]

The ulceration which is the subject of the present remarks is described by Abercrombie and others as simple ulcer of the stomach, to distinguish it from various other lesions of that organ, produced by cancer and other affections. I am not aware that this kind of ulcer has ever been seen in its early stage before it has penetrated the submucous tissues, and therefore can say nothing respecting its origin, whether it commences in the mucous membrane, and passes perpendicularly downwards towards the peritonæum, or whether it arises from inflammation and ulceration of a submucous gland, or follicle, which, after extending to some distance beneath, opens, like the ulcers of the intestines, into the cavity of the stomach at first, and afterwards penetrates the peritonæum by the continuance of the ulcerative pro-

cess. The form of the ulcer is round, oval, or square, as in the present case, with perpendicular edges more or less thickened and elevated, the mucous membrane being inverted at the edge, the muscular coat completely removed, and the peritonæum perforated by an aperture much smaller than the area of the ulcer. Sometimes there is more than one ulcer, either in the same stage of progress, or cicatrized, in which case the tissues round the cicatrix are puckered in radiating elevations. As the ulcers have generally been observed in parts of the stomach where the surrounding mucous membrane has been healthy, I am disposed to think that the ulcer originates in the mucous membrane itself, and not in the submucous glands, particularly as I have occasionally found a number of superficial ulcers in the cardiac portion of the stomach, which is more especially the seat of this disease, at least in females, for there is a remarkable difference in this respect between the sexes; all the ulcers in the male being situated towards the pyloric end of the stomach, with one or two exceptions, in which the extremity of the œsophagus was the part affected, whereas in the female the ulcerations are confined to the cardiac portion, or, at least, to the left of the median line. Again, if the ulcers were produced by inflammation of the submucous glands, they would probably be much more numerous, for we find the mammillated condition of the stomach which is produced by chronic irritation of these submucous glands usually extending over a considerable space, as may be observed in the case before us. The persons affected with simple ulcer of the stomach in these kingdoms are chiefly females; but in France the majority of the cases observed by Cruveilhier occurred in males. The complaint has not been found, in any instance, before the usual age of puberty; but a considerable proportion of the cases have been met with in women suffering from amenorrhœa emansionis, as in the present instance. The patients in almost every case were below the middle age.

The symptoms of ulcer of the stomach are usually those of common dyspepsia; but in several cases even these have been entirely absent. There can, therefore, be none which can be considered as pathognomonic; but those most usually present are, pain in the epigastrium and in the left hypochondrium, increased by pressure, and also on taking food, which is often rejected, at least in part. The pain and vomiting almost immediately succeed the entrance of the food into the stomach; but the latter stages of the digestive process are uninterrupted. Pain is also felt in many cases between the shoulders.

Such are the symptoms that ordinarily precede the rupture or perforation of the stomach by the ulcer; but the instant this has taken place, burning pain is felt in the abdomen in a single spot, from which it radiates until it extends over the whole cavity, which becomes exquisitely tender to the touch. There is extreme depression, amounting to prostration of the vital powers; but syncope is not actually produced, though the pulse is very feeble. Vomiting is usually present from the first, but this symptom may be merely the effect of the sudden prostration. After a short interval some reaction occurs, and then we recognise the symptoms of most intense and acute peritonitis; but one symptom is present from the first, viz., the knees are drawn up-

wards to the abdomen, and the pain is increased by any attempt to straighten them and extend the body. The abdomen is swollen and tense, but not always clear on percussion, as it may be dull from the amount of effusion, which takes place most rapidly. The patient is extremely restless, but perfectly rational, and often expresses a fear of death, which is usually verified in less than twenty-four hours from the commencement of the seizure. In some cases, however, the most urgent symptoms remit for a time, to be succeeded by another and fatal attack. In these instances, adhesions of the viscera of the abdomen are found, which have precluded the escape of the contents of the stomach, and consequent extension of the inflammation.

In a few cases, the ulceration corrodes the coats of one of the arteries of the stomach, and produces profuse hemorrhage, which is ejected by vomiting, in the form of clots of blood, thus serving to distinguish cases of hæmatemesis, the result of ulceration, from that produced by sanguineous exudation from the mucous membrane, in which case the blood is darker in colour, and more fluid in consistence. From this symptom I was enabled to diagnose an ulcer in the stomach, in a case of fatal hæmatemesis.

It is a remarkable fact, that though the symptoms of perforation of the stomach are so strongly marked, yet in very few cases do they appear to have been recognised previously to the death of the patient, consequently the treatment employed has usually been merely in palliation of the symptoms. From the success, however, that has attended more or less completely the treatment of cases of perforation of the intestines by opium, there is good ground for placing confidence in that rather than in any other of the remedies hitherto used. Purgatives, emetics, and aperient enemata, and all other remedies that excite the peristaltic action of the bowels, must be worse than useless, as the movements they occasion of the contents of the abdomen must have the effect of diffusing more widely the irritation produced by the effusion of the contents of the stomach. Opium has a directly opposite effect; it checks the vermicular motion of the bowels, while it supports the powers of nature until an exudation of lymph takes place, which glues the ulcer to the adjoining tissues, preventing the further escape of the contents of the stomach, and isolating the seat of the inflammation from the remainder of the peritoneal surface.

In cases where I have had reason to suspect the existence of an ulcer in the stomach, I have found a combination of tonics and astringents, with antacids and opiates, and giving very small quantities of the food most easily digested, whether animal or vegetable, fluid or solid, to have been most successful in allaying the symptoms.

Dr. Graves, of Dublin, has published two cases of the successful treatment of suspected perforation of the stomach by the use of opium.

Art. 26.— *Differential Diagnosis of Gastralgia and other more Serious Affections of the Stomach.* By M. Valleix.

(*British and Foreign Medico-Chirurgical Review*, Oct. 1850.)

The diagnosis of gastralgia is often difficult; the slighter forms may be mistaken for the slight gastric disturbance, called by the French,

"*Embarras Gastrique*," or for acute gastritis; while the ordinary chronic forms may be mistaken for chronic gastritis, simple ulcer of the stomach, cancer of the stomach, or intercostal neuralgia.

The most important distinctive signs are thus given by Valleix:

GASTRALGIA—ACUTE FORM.	GASTRIC DISTURBANCE.
Acute pain in the epigastrium.	*Discomfort* rather than pain.
Appetite *preserved.*	*Anorexia.*
No headache.	*Headache* frequent.
Nausea *only after meals, or in the morning.*	Nausea frequent at *all periods of the day.*
GASTRALGIA—ACUTE FORM.	**ACUTE GASTRITIS.**
Appetite *good.*	Appetite *lost.*
No pain on pressure.	*Acute pain* on pressure.
Vomiting *rare, mucus* or of *food.*	*Bilious* vomiting *frequent.*
No fever.	*Distant fever.*
CHRONIC GASTRALGIA.	**CHRONIC GASTRITIS.**
Usually uncomplicated.	*Usually complicated* with another affection.
Vomiting *rare, mucus or food.*	*Bilious* vomiting frequent.
Spontaneous pains often *very acute.*	Spontaneous pains *less acute.*
Usually no pain on pressure.	*Pain* on pressure *acute.*
Progress of disease *irregular.*	Progress less irregular.
Absence of fever.	*Fever generally present.*
CHRONIC GASTRALGIA.	**SIMPLE ULCER OF THE STOMACH.**
Appetite *more or less preserved.*	Apetite *lost.*
Vomiting a *considerable period* after food.	Vomiting *immediately* after food.
No vomiting of pure blood or dark matter.	*Sometimes* vomiting of blood or black matter.
Progress *slow.*	Progress *rapid.*
CHRONIC GASTRALGIA.	**CANCER OF THE STOMACH.**
Vomiting as before.	Vomiting *at long periods after food.*
Destroys *slowly.*	Destroys *rapidly.*
No signs of cancerous cachexy.	*Signs* of cancerous cachexy.
Progress *irregular.*	Progress *regular.*
CHRONIC GASTRALGIA.	**INTERCOSTAL NEURALGIA.**
Pain *not increased by pressure.*	Pains *on pressure.*
Well-marked gastric disturbance.	No gastric disturbance.

Art. 27.—*Diagnostic Value of Epigastric Pains.*

[According to Wunderlich, ('Handbuch der Pathologie und Therapie,') the following points are worthy of attention, in reference to pains in the epigastric region :]

Gastric pains in persons whose digestion and appetite are unaffected, and which are not exacerbated by hunger or food, most probably depend upon the spinal cord, or on some organ adjacent to the stomach. Pains which are diminished by strong pressure may be set down to neuralgia. Pains which are distinctly increased when the hand is placed gently on the stomach, but which are not proportionally aggravated by firm or abrupt pressure, are either imaginary or sympathetic. Pains continue for days or weeks, or recurring at definite periods without any obvious cause ; also pains which come on suddenly with great severity and disappear as rapidly, are, probably, due to gastric neuralgia; they may depend on gazeous distension. Pains arising in the scrobiculus cordis and radiating in various directions, may arise from cardialgia, rheumatism of the abdominal walls, or peritonitis. Gastric pains, which are suspended by food, depend on neuralgic affection, or the presence of parasites. Pains which exist, both while ordinary food is taken, and when fasting, but which disappear when stimulating food or drink is taken, depend on anæmia of the stomach. Pains which are increased by the smallest quantity of food, indicate probable gastritis or degeneration. If pains supervene an hour or two after meal-time, we fear disease of the pylorus. [This assertion will needlessly alarm a large proportion of dyspeptics.—Ed.] Lancinatings are sometimes remarked in cancer.

Brit. and For. Med.-Chir. Rev., Oct. 1850.

Art. 28.—*Treatment of Habitual Constipation.* By Dr. J. C. Warren.

(*American Journal of Medical Sciences*, July, 1850.)

The treatment of chronic costiveness, an ailment so common in persons who lead sedentary lives, may be either medicinal or alimentary. Of medicines, Dr. Warren employs but three, aloes, magnesia, and senna wine. He considers that the bitter principle of *aloes* renders it in some measure a substitute for the deficient bile, and a few grains of the powder or gum forms a mild and effectual aperient. The watery extract (5 to 10 gr.), combined with an aromatic oil, is one of the mildest of laxatives, taken fasting. Aperients should not be taken at night, when they become buried in the alimentary mass and ineffectual, or in their action disturb the repose of patients of an irritable temperament ; but when the stomach is empty, either before dinner or breakfast. *Magnesia*, however, is so mild an aperient, that even if taken at night, it does not disturb sleep, and, from its combining with the acids which have been generated during the day, is then even more likely to be useful. When the stomach is not acid, half an orange aids its action. *Senna-wine*, prepared according to

Dr. Lane's process, is a very satisfactory aperient, the dose being from ½ oz. to 2 oz., and as it is slightly stimulant, it may be taken for an oppressed stomach at night. If taken in the morning, it should be diluted with equal parts of water.

Among the *alimentary* substances which tend to relieve constipation in some persons, fruit is the most agreeable; but for this end it should be taken before meals, when the stomach is empty—its employment after a full meal often giving rise to acetous fermentation and consequent disorders. Laxative vegetables are not usually easily digested by persons of weak stomachs, in whom they cause distressing flatulence. In other subjects they may act very beneficially. The costiveness which occurs after weaning is removed by a slightly-sweetened infusion of cranberries. Some persons find advantage in drinking a glass of cold water, others a cup of strong coffee, early in the morning. Animal food is rather laxative than not, especially the fatty portions, which, however, delicate stomachs cannot manage. Some people take much wine, believing it acts on the bowels. If it does so, it is from the mere weight of the fluid, or perhaps from its causing a toxical effect, when the bowels take on a conservative eliminatory action. Most wines and spirits, taken in moderate quantities, adstrict the bowels.

Fine flour is highly nutritious; and if exclusively used, like other nutritious substances, as jelly, arrowroot, milk, &c., causes costiveness. The artificial separation of the covering of the corn is counteractive of the intentions of nature, this stimulating the intestine to expulsive action. After employing, with great advantage, bread containing the *bran* in his own family, and recommending it to numbers of others, the author was induced to try a still coarser preparation. Wheat was ground in a coffee-mill, and then boiled with a succession of water and a little salt for three or four hours. This Dr. Warren has found incalculably *the best and pleasantest remedy for constipation*, effecting quite a revolution in the economy and health, when taken in sufficient quantities (12 oz.), either as a part or whole of the breakfast, or instead of pudding and vegetables at dinner. When the stomach will bear sweet substances, honey, molasses, &c., may be added with advantage. A moderate degree of fluidity, i. e., less than that of boiled rice or hominy, increases the laxative power. The wheat acts in part by its mere bulk, and probably in part by reason of the stimulating effect of the particles of bran.

Art. 29.—*Remarks on Pulsating Abdominal Tumours.*

By C. M. Durrant, M.D.

(*Prov. Med. and Surg. Journal*, May 15.)

[Dr. Durrant relates a case of abdominal pulsation in a female after labour, which had been mistaken for aneurism, upon which he writes the following commentary:]

The diagnosis of pulsating abdominal tumours is often very obscure, and in some cases their true character can only be revealed with cer-

tainty as the result of a *post-mortem* examination. The disease, respecting the nature of which, the greatest interest, because the greatest hazard, obtains is, of course, aneurism, and this is liable to be simulated by many affections common to the abdominal cavity, and these, it is well known, may exist under very dissimilar conditions. The principal affections by which the diagnosis of ventral pulsation may be rendered doubtful, are tumours connected with the stomach, mesentery, pancreas, or omentum, lying over, and receiving pulsation from, the subjacent artery, impacted fæcal matter, masses of worms, or gaseous accumulations in the bowel, similarly located in reference to the vessel, and, lastly, nervous and inflammatory affections of the aorta itself.

If the tumour be visceral, we may often succeed in effecting its displacement by change of posture, or by making lateral pressure with the stethoscope, when both pulsation and murmur may for a time be suspended; but if the disease be aneurismal, this proceeding will, of course, be unattended by a similar result. The history of the case, the character of the murmur and impulse, and the recollections of the fact that tumours contiguous to the artery are of more frequent occurrence than disease of the vessel itself, will also assist the formation of a correct differential diagnosis.

If the swelling be the result of fæcal or gaseous impaction, free and efficient purging will at once clear up the nature of the case.

Nervous pulsation of the aorta, when coexisting with circumscribed flatulent distension of a portion of intestine, will sometimes closely resemble ventral aneurism, but the habit of the patient, together with the negative character of many of the phenomena, will in general render the diagnosis sufficiently easy.

The sex of the patient, (Dr. Edwards Crisp states that out of fifty-nine cases of aneurism of the abdominal aorta, eight only were females;) the occurrence of the pulsation, perceptible for the first time immediately after a miscarriage; the heart sympathising in the general disturbance; the inconstancy of the impulse; the firm, unyielding character of the tumour; the absence of lateral pulsation, together with the freedom from constitutional suffering, were the chief points upon which, in my mind, the non-existence of aneurism rested.

That it did not arise from fæcal or gaseous impaction was evident from the generally good state of health, and the length of time during which the impulse had been more or less perceptible and troublesome to the patient.

The possibility of the tumour being malignant, and connected either with the stomach or pancreas, will be equally set aside by the state of the general health.

From these negative circumstances, the opinion which was given, and which I believe to have been the correct one, was, that the tumour was an enlarged mesenteric gland, lying upon, and transmitting the pulsation of, an irritable aorta. As already stated, an irritable condition of the heart and large vessels is an exceedingly deceptive affection in nervous constitutions, and the occurrence of pulsation immediately after the anxiety and excitement necessarily attending upon a

miscarriage (although there had been no undue amount of hæmorrhage), would strongly tend to its production; and this condition would, in no slight degree, be perpetuated by the nine months of horizontal posture, coupled with the dreaded anticipations of approaching labour.

Art. 30.—*Mechanical (?) Obstruction of the Bowels treated successfully by Opium.*

[The following case is worthy of attentive consideration:]

J. S—, æt. 33, a coal-porter on a wharf, rose on the morning of the 26th June, 1850, in his usual health, and, before going to his work, went, as his habit was, to stool, and had a good evacuation from the bowels. About half an hour afterwards, whilst stooping to fill a sack, he was suddenly seized with a sharp pain across the abdomen in the hypogastric region, accompanied by a sense of constriction. He was obliged to leave his work and to go home; in a short time he began to vomit, and, since the attack, has been unable to pass anything downwards. He was treated by Mr. Mitchell of Deptford, but without effect; and on the evening of the following day, forty hours from the accession of the symptoms, he was sent to the hospital with a note, saying that no hernia could be found, but that an internal obstruction was suspected. The assistance of Mr. Cock was obtained, who examined all the outlets, but could detect no protrusion. On admission, he had all the usual symptoms of strangulated hernia; urgent vomiting; anxious countenance; pulse rather frequent; temperature of surface depressed; abdomen rigid, rather tumid, and slightly tender on pressure; urine small in quantity and high coloured. He was ordered opium, a grain every four hours, and to abstain from indulging his thirst. The report of the third day at noon is, that he passed a restless night, vomiting continually. He was seen early in the morning, everything was interdicted, even to cold water, and he is now better; the paroxysms of pain in the abdomen being less urgent. As he was under the influence of opium the dose was diminished to half a grain, and a copious enema of salt and water was thrown by a long flexible tube into the rectum; it passed up readily, but returned without bringing away any feculent matter. In the evening he was restless; his countenance anxious; the vomiting and other symptoms continuing as before.

4th day, eight o'clock, a. m.—He vomited during the night in considerable quantity; the abdomen is tense, and coils of distended intestine can be partially traced, the peristaltic action making them prominent, with the accession of pain in the abdomen, of which he bitterly complains. His countenance is still expressive of great anxiety, and the features are shrunk. He has passed about half a pint of urine, clear and well coloured; the pulse accelerated and diminished in power. He was ordered to go on with the opium. During the morning his abdomen was exposed for some time, whilst a sketch was made of its peculiar form, and the position and direction of the prominent convolutions, in order to determine more accurately the precise

seat of obstruction, when, suddenly, about noon, he expressed himself relieved, saying that "something had given way within him;" and this feeling was quickly followed by a copious flow of liquid fæces inundating the bed. From this time he steadily recovered; the vomiting and hiccough at once subsided, and the face acquired a cheerful expression.

Certainly, no cases present a less promising prognosis than those of mechanical obstruction of the intestines, nor has the enterprise of modern surgery yet succeeded in diminishing their mortality. The case here recorded presents points of no common interest; that it was one of mechanical obstruction there can be but little doubt, and if so, we had an instance of its spontaneous solution, and it answers in the affirmative the question, Can we hope for a successful result in mechanical obstruction without surgical interference? From what we have recently seen in this hospital, there is reason to believe that irregular peristaltic action, following upon indigestible food, is not an uncommon cause of internal misplacement; but, in the case here recorded, it came on after a night's fast, and before any meal had been taken in the morning. He rose as well as usual; the bowels acted according to his daily habit; he went to his work in good health, but whilst in a stooping position the pain came on. It need not be mentioned that there was neither history nor trace of lead in the system, nor, indeed, were the symptoms such as arise from that mineral. The only remedy trusted to in the treatment was opium, but the happy termination of the case, while the abdomen was exposed to the cold air, renders it probable, that moderation of temperature had somewhat to do with the result. The application of cold has been suggested in such cases, and has much in theory to recommend it, and might be expected, in conjunction with opium, to effect all that mere treatment can effect. For, suppose a portion of intestine to have insinuated itself under any accidental band in the abdomen, by what means can we so well hope to liberate it as by reducing its volume, and by allaying the vomiting. I would also suggest, whether opiate suppositories would not sometimes more efficiently promote the latter object than opium by the stomach. Of the opiate plan of treating intestinal obstruction too much cannot be said. It has both reason and experience on its side; and yet, in the reports daily given of such cases, purgatives form generally the early part of the treatment, and are persevered in until the stomach will bear them no longer, serving only to exhaust the patient and increase the symptoms.

Medical Times, Aug. 24, 1850.

Art. 31.—*Observations on Tænia.* By M. Legendre.

(*Archives Générales*, Juin, 1850.)

When a patient presents himself with fragments of tape-worm, which he has passed, no doubt can be entertained as to the nature of his malady; but the case is not always so fairly enunciated. In many instances the symptoms are very embarrassing, and a close analysis is required in order to reveal the true cause of the anomalous, nervous,

and other symptoms which present themselves as a consequence of the presence of the parasite.

Before the author reports the cases which he considers appropriate for the purpose of declaring the nervous symptoms in question, he thinks it right to call attention to certain circumstances, the knowledge of which materially simplifies, as the ignorance of them tends to obscure the diagnosis.

Whenever a person, especially of the male sex, is the subject of unusual nervous symptoms, such as vertigo, fainting, derangement of vision, or hysteric form attacks, the possibility of the existence of tænia may be reasonably suspected. This suspicion is the more warranted, if there be no hereditary predisposition to nervous troubles, and specially so if the patient have resided in a locality in which tænia is known to be endemic.

This suspicion once aroused, it becomes necessary to inquire minutely, as to the fact of the patient having passed fragments of the worm; his and her attention must be specially directed to the point. It is also advisable to administer calomel and castor-oil as a purgative in the hopes of evacuating portions. It is, nevertheless, not sufficient to trust to these latter medicines in the case of want of success, inasmuch as the worm is often passed spontaneously after it has resisted their action.

A means of more distinctly resolving any doubts as to the existence of the animal, is fortunately presented to us in the bark of the pomegranate, and in some other vermifuges, among which we may particularise turpentine and the kousso. But of these, the author prefers the former if given in proper doses, and with proper precautions. The preparation he prefers is the decoction of the dried root, made by boiling 60 grammes of the root in 750 grammes of water, evaporated to 500. A point of great importance in the exhibition is said to be, that it should be given only when the patient is passing fragments voluntarily, and the symptoms are in their greatest intensity. M. Merat insists strongly on this.

In his resumè of 206 cases of tænia, M. Wawruck, of Vienna, attributes this spontaneous evacuation of fragments to the influence of the moon. He says that their escape corresponds with the new or the latter quarter, and that the symptoms are always aggravated at these times.

Some practitioners premise the use of the pomegranate by the exhibition of an ordinary purgative; others object to this, as likely to irritate the intestinal mucuous membrane, and to render it intolerant of the other and more active medicine.

[Three cases are reported by the author, illustrating the various nervous symptoms which may be produced by tape worm, after which he recapitulates the phenomena as follows:]

In thirty-three cases of tape worm the principal symptoms observed were: Disturbance of the cerebro-spinal functions occurred in twenty. Of these, convulsions, either hysteric or epileptic, appeared in twelve cases. In the remainder the convulsions were local and partial. Next to convulsions, vertigo, or headache, was the most common symptom. Syncope, more or less complete, occurred in a fourth of the cases.

Disturbance of vision, and noises in the ears, were also frequent. Finally, in fourteen cases the nervous symptoms were accompanied by a sensation of pricking or gnawing in the epigastrium.

To resume. Whenever, without appreciable cause, certain symptoms present themselves, the physician should suspect tænia. These symptoms are the nervous disturbances above alluded to, together with epigastric pain, unequal appetite, general feeling of prostration, and itching of the nose and anus.

Art. 32.—*Oxide of Silver in Tape Worm.*

Mr. Whittel speaks highly of the efficacy of oxide of silver in tænia ; but his experience is confined to two cases. The first which came under his notice was that of a female of middle age, who at different times, for the space of ten months, had complained of various anomalous symptoms, supposed to arise from worms. Turpentine was administered on two occasions for three successive mornings, but it only brought away a few joints of the parasite. At the end of the tenth month, the author prescribed the oxide of silver for menorrhagia by which she had been attacked, in doses of one grain, with an ounce of mixture containing six ounces of bitartrate of potash in the half pint. After she had taken the fourth dose, she evacuated a large quantity of tape worm ; she remained much improved for a considerable time. The second case was equally satisfactory.

Lancet and *Provincial Journal.*

Art. 33.—*Observations on Ascites.* By Dr. B. Todd.

(*Medical Gazette,* Oct. 11, 1850.)

[After relating the particulars of several cases of ascites, Dr. Todd makes the following observations on its causes, diagnosis, and treatment :]

1st. Of the causes of ascites by far the most frequent is disease of Glisson's capsule, or of the liver itself. 2dly. Disease of the peritoneum is not an unfrequent cause, either chronic peritonitis, or tubercular or cancerous disease of the peritoneum ; but these seldom cause extreme distension of the abdomen, unless the morbid mass presses very much on the portal vein or some of its tributaries. 3dly. Tubercular disease of the mesenteric glands, when the disease causes such enlargement of them as to form a tumour, which compresses the mesenteric veins. 4th. Enlargement of the spleen, too, is apt to produce ascites, but seldom, the author thinks, to a great extent, as the spleen has an extraordinary power of adapting itself to changes in its circulation ; and likewise because its position does not enable it, when enlarged, to exercise great pressure on the other tributary veins of the porta. 5th. The author has seen, also, a case in which enlarged kidney gave rise to ascites. 6th. Acute peritonitis will produce ascites ; this is of a different nature from those previously mentioned, and falls more under the category of acute dropsy. The peritonitis

gives rise to an undue accumulation of blood in the capillaries beneath the peritoneum, and the dropsy takes place as a consequence of this congestion or sub-inflammatory condition.

[The author next calls attention to one or two conditions which may possibly be mistaken for ascites, the necessity of guarding against which fallacy renders the diagnosis rather more complicated.]

Sometimes we find in ovarian dropsy that there is a clear tympanitic sound over the tumour ; this may be caused by the development of gas in the cyst, either through a process of decomposition of its fluid contents, or by a kind of secretion, as when the bowels generate gas, but more commonly, the author thinks, when a communication is formed between the tumour and the bowel, and the flatus from the latter gets into the ovarian cyst. A short time ago there was an interesting example of this in the hospital. A woman having all the signs of ovarian dropsy was tapped three or four times ; there was dullness all over the tumour, and there could be no doubt about the case ; when suddenly the tumour became perfectly tympanitic, and, on opening the body after death, a communication was found between the ovarian cyst and the intestine, through which the flatus escaped into it, and given rise to conditions which made the case exactly resemble ascites. If the entrance of flatus had occurred earlier in the case, the diagnosis would have been extremely difficult.

Ascites, with very tympanitic bowels, would present exactly similar signs to those present in this case.

There is another source of fallacy which may be mentioned, as it was one into which John Hunter fell. Sir Everard Home mentions that that great surgeon and physiologist once tapped a *distended bladder*, under the idea that it was a distended peritoneum. We know that patients are very apt to allow their urine to accumulate, especially when they are unable either to feel acutely, or to communicate their wants, as is often the case in fever. The only symptom of the commencement of this distension may be that the patient passes a restless night : the medical attendant, perhaps, does not look for the real cause, and by and by the bladder becomes so distended as to fill the whole abdomen. Now, we can easily understand how it would be very difficult to distinguish such a state from ascites. We should always ascertain how the urine is passed ; and if this is such as to leave any doubt, we should pass the catheter.

There is only one other thing that occurs to me as possibly mistakable for ascites, and that is an enormously distended stomach. To what an extent this distension may take place we had an opportunity of seeing, not long ago, in a woman who died of chronic gastric disease. The stomach was so much enlarged that it filled the whole anterior part of the abdomen, all the other hollow viscera being compressed behind and below it. Such a stomach, filled with fluid, may produce fluctuations very analogous to those of ascites. The way to put the matter beyond doubt is to produce vomiting, and cause the ejection of all the contents of the stomach : if, then, the undulating fluid was in the stomach, the fluctuation will immediately disappear. The author had an interesting case of this a little time ago in his private practice, and he ascertained the nature of the fluctuation by

visiting his patient the next morning before he had taken anything, when the fluctuation had entirely vanished.

Treatment.—If we can clearly make out that the ascites depends on disease of the liver and of its capsule, and if the liver be not permanently contracted, then the treatment should be directed to the reduction of the chronic inflammation which affects the capsule. With this view the use of mercury should be resorted to, and in many instances it will prove highly useful, and a free discharge of water by the kidneys will often take place simultaneously with the production of ptyalism.

It is also, of course, desirable to increase the action of the kidneys by other means besides. In the cases which have been here detailed, diuretics were used with variable degrees of success, broom, taraxacum, cantharides, nitre, bitartrate of potass, lemon juice, digitalis, squills; and these are among the best of a very uncertain class of remedies.

The author also recommends attention to the part of the treatment he has made use of with great advantage, viz., *pressure* on the abdomen by means of bandages and strapping. Two of the cases derived great benefit from it, especially the man; he expressed himself (and the feelings of the patient are in such a case very valuable) as much relieved.

A question often arises as to the propriety of *tapping* in ascites. The opinion the author has come to is, that the operation of tapping should be postponed as long as possible; but that that should not be until the distension is extreme. When the distension is allowed to become excessive, the danger from tapping is greatly increased; therefore, if we have tried all reasonable measures, and they have failed, we need not wait for extreme distension, but tap at once. The danger to be apprehended from the operation is the supervention of peritonitis, and the sinking of the patient. Now, the danger of peritonitis may be very much guarded against, by keeping the patient for some time previous to, and during the operation, under the influence of opium.

Still, tapping can be regarded generally only as a palliative measure, and affords very little hope of ultimate cure: nevertheless, it is not, however, perfectly hopeless, for the author has known two cases of recovery in his own experience.

Tapping may be performed with more hope of success when the liver is enlarged than when it is contracted; and it affords least prospect of benefit when the obstructing cause to the venous circulation is extrinsic to the liver, as when it consists of a tumour, or of chronic peritoneal disease. Upon the whole, the author comes to this conclusion,—that tapping, though a remedy not lightly to be adopted, is not one lightly to be rejected; and though in the majority of cases it does not result in an ultimate cure, yet it is not perfectly hopeless.

SECT. VI.—DISEASES OF THE GENITO-URINARY SYSTEM.

Art. 34.—*Remarks on the Relation of the Dumb-Bell Crystals to Uric Acid.* By Charles Frick, m.d., of Baltimore, Maryland.

(*American Journal of Medical Science*, July, 1850.)

The pathology of oxalate of lime, and its relation to uric acid, are now so clearly understood, and so universally recognised, that it is needless at this time to enter into a particular explanation in regard to its formation; and we shall, therefore, take it for granted that, in ascribing its presence in the urine to deficient oxidation of the uric acid, we are assuming the correct explanation. Under the microscope, the most common form that this salt presents when it exists as a urinary deposit, is that of double pyramids united at their bases, or, as they are usually termed, octahedra: and these at first were the only recognised crystals of oxalate of lime. Dr. Golding Bird, however, in a work on 'Urinary Deposits,' first called attention to some peculiar crystalline bodies having more or less the appearance of dumb-bells, which he described as oxalate of lime, and which all observers subsequent to him have included under the same head. For many reasons, we were led to doubt the correctness of this opinion; and having had, as we think, an opportunity of satisfying ourselves in regard to their composition, we deem it a point in pathology of sufficient importance to allow of some brief remarks. It is true that the question might easily be settled by chemical analysis, but the infrequency of the occurrence of these crystals, and the minute quantity in which they are found, render this test impossible. We think, then, that these dumb-bells are not oxalate of lime, but that their presence may be accounted for by the disintegration of crystals of uric acid.

If oxalic acid and lime be added together, the crystals formed under these circumstances are always double pyramids, although at times so small as to be scarcely perceptible; and, however long the deposit be allowed to remain, neither dumb-bells nor ovals are ever found to make their appearance. Whereas, if a deposit, consisting entirely of uric acid, be carefully washed, and clear water added, we may discover, in a certain number of cases, after the lapse of a few days, that dumb-bells are present, indicating, beyond a doubt, their formation from uric acid without the addition of lime. We were led to make this experiment from the following considerations:—We had frequently observed in a specimen of urine to which a small quantity of muriatic acid had been added, that, after standing a few hours, although crystals of uric acid only with a few epithelium scales and a small quantity of mucus were present, yet, after the lapse of some days, these specimens would occasionally be found to contain dumb-bells, while the uric acid either entirely disappeared or presented an amorphous appearance. We were thus shown that some relation existed between the dumb-bell crystals and those of uric acid, and that their formation was in all probability subsequent to the elimina-

tion of the uric acid by the kidneys. We then determined to take pure uric acid, or at least as pure as it could be obtained from urine by repeated washing, and observe, under the microscope, the alterations that it underwent from day to day. By setting aside several specimens, and noting the changes that took place from day to day, we observed that, in the first place, the rectangular crystals had a tendency to become irregularly rounded off at the ends, afterwards to be fissured across near their centres in an oblique direction; and, finally, these two portions still adherent became rounded off in irregular steps towards the periphery of the figure; and this change we have remarked not only once, but on several different occasions. Should the crystals originally consist of rhomboids rounded off at their oblique angles, we may often observe that these first unite at their points—the two longitudinal axes being both in the same line—and then by the extreme points falling off, and these becoming, by degrees, irregularly rounded, they constitute a variety of the dumb-bell crystals in which the concavity of the sides is but slightly marked. Another, and, perhaps, the most common form of this transition stage, is where one end of the base is fully formed, as is also the union between the two, but the opposite head, instead of being rounded, is elongated to a point. More commonly, they are very irregular in shape, but still with resemblance enough to a dumb-bell to be sufficiently characteristic. The figures marked No. 4 in the woodcut are of this variety. It is rare for more than one or two of these crystals, while actually in the transition stage, to present themselves at the same time under the field of the microscope. But within a few weeks past we have been fortunate enough to detect, in a specimen of uric acid put aside for this purpose, not only the dumb-bells in their formative stage, but also several fully formed, as well as some crystals of uric acid almost unchanged. This we copy from the field of the microscope, and is represented in the woodcut that accompanies these remarks, with the exception of the two figures marked 4, which were observed on another occasion; for without some such explanation the change we have just been detailing could not readily be understood.

Close attention will also enable us to observe that the ovals usually described as separate figures from the dumb-bells are in

fact identical with them; the apparent difference being in reality due to the different planes in which they are seen. Some of these are transparent dumb-bells, with a very slight concavity at the sides surrounded by an oval, the interval between the two being filled up with a black space; while others, again, appear to be dark ovals with a small transparent square set in the middle. If these are made to revolve on their short axis, it will be seen that one face presents an oval, while a section made at right angles to this is a true dumb-bell. Both these forms, if the deposit is of any size, are usually seen together, but occasionally one only presents itself.

We are unable to speak with certainty as to the original shape of the uric acid crystal which determines the subsequent formation of dumb-bells, but are of the opinion that, in a majority of instances, the rectangle, with a height nearly equal to its base, more than any other form, is most liable to this transformation. They are seldom if ever observed at the time of micturition, and are in fact very rarely seen. Of the many hundred abnormal specimens of urine presented to us during the last few years for examination, we do not remember to have seen them but on four occasions, and in each one of these the urine had been voided twenty-four hours previously.

In his description of these figures, Dr. Bird states that "they are produced, in all probability, by a prolific arrangement of minute acicular crystals" (of oxalate of lime). But this, we think, cannot be the case. There can be no lime entering into their composition, for we have shown that their formation takes place when there is none of this substance present; but, at the same time, we must acknowledge our inability to explain the exact process that goes on. It would seem, however, from the changes exhibited under the microscope, that this result is one of simple disintegration. All crystalline bodies made up of organic elements have a tendency, by exposure to air or water, to lose their clear, distinct outline and sharp edges, and to become amorphous; and, in all probability, crystals of uric acid of a peculiar shape have, under circumstances which we yet cannot explain, a tendency to break up and agglomerate in certain forms, more or less referable to dumb-bells.

In connection with this subject, we may mention here a change somewhat analogous that occurs in the crystals of the triple phosphate. The phosphate of magnesia and ammonia, or, as it is more commonly called, the triple phosphate, occurs in the urine under two different forms, one stellar and the other prismatic; and, although both of these present an endless variety of crystallization, yet both may be included under one or the other of these heads. This difference has been heretofore explained by calling the one a monobasic, and the other a deutobasic salt, under the supposition that twice the quantity of ammonia was combined in the last in proportion to the other. Our friend, Dr. David Steuart, of this city, however, has lately called our attention to the fact that these crystals may be formed, one from another, by simple aggregation. He succeeded in depositing them from the same specimen in both forms, and also in crystalline shapes intermediate between the two. This he effected by making an acid solution of the phosphate of ammonia and magnesia, and then adding very cautiously

a drop of ammonia. This precipitates the phosphates immediately at the surface, a portion of which fall to the bottom of the glass to be again redissolved. The upper stratum is, after a time, gently shaken, when more crystals fall with the same effect. There is a point, however, if the solution is not too acid, or sufficient ammonia has been added, when some of these crystals remain undissolved, and, by carefully setting aside the tube at this stage, and allowing it to remain undisturbed for some time, we may detect, by the microscope, both the prismatic and stellar crystals with their intermediate stages. This experiment we have repeated, and are able to substantiate his opinion in regard to the mode in which these formations occur. Most of the stellar crystals are of two varieties; the first being composed of four rays, and the second of six. In the first we usually find, during this process, that, by aggregation of crystalline material, two prisms are formed which intersect each other at right angles; or else two of the rays which are in the same line become elongated, and material is gradually deposited in the interstices to make up a single perfect prism, the two long arms corresponding to the length, and the two short to the breadth of the crystal. In the second variety, where the figure has six rays, four of these become elongated in a similar manner, and the same deposition occurs in the other; or else these rays are all joined together at their extremities, and the figure then filled up constitutes one variety of the prismatic crystal which is very frequently observed. These crystals, then, are not dependent upon the difference in proportion of ammonia in the two, but merely to the rapidity with which they are formed; nor is the stellar variety, as has been heretofore stated, indicative of a severer lesion than the other. We ourselves have never seen these stellæ already existing in urine at the time of emission, nor have we ever observed them to occur spontaneously.

The relation of these two forms of phosphate to one another seems to us a very interesting point in urinary pathology, and we are of the opinion, that many of the crystals found in this secretion, heretofore considered as differing from one another in their chemical composition, will be found a more accurate observation to be formed either by the aggregation or disintegration of primitive crystals.

Art. 35.—*On the Detection of Oxalate of Lime in the Urine.* By Dr. H. Bence Jones, f.r.s.

(*Lancet*, Feb. 1850.)

Oxalate of lime is so frequently found in the urine of those who are in a good state of health, that the author does not consider it as indicating any disease, but only a disorder of no serious importance. He states that it scarcely indicates a more serious derangement of the general health than a deposit of urate of ammonia does, and may occasionally be found in the urine of all who lead sedentary lives, taking insufficient air and exercise, and more food than is requisite for the daily wants of the system. He has found it in the urine of those who are free from every complaint. Even in the urine of healthy

children it may very frequently be seen. He has met with it in every kind and stage of disease. In the fracture wards of St. George's Hospital he has very frequently found it. In cases of indigestion, especially where flatulence occurs; in cases where no indigestion ever was felt; in skin diseases; in cases where the skin never was affected; in cases of acute rheumatism, of acute gout, of fever; in sciatica, in a gentleman of 74, with spermatorrhœa; and in the diseases of women and children, octohedral crystals occur. So frequently has the author found oxalate of lime mixed with urate of ammonia in sediments and calculi, that he has returned to the conclusions which Dr. Prout originally published in the second edition of his work. After giving some details of twelve cases of oxalic calculus, he says: "We are authorised to draw the following conclusions: 6th. That from the dissection of calculi formerly mentioned, it appears that the oxalate of lime diathesis is preceded and followed by the lithic acid diathesis—a circumstance which seems to be peculiar to these two forms of deposit, and when taken in conjunction with the other circumstances already related, appears to show that they are of the same general nature, or, in other words, that the oxalic acid merely takes the place, as it were, of the lithic acid, and by combining with the lime naturally existing in the urine, forms the concretion in question. 7th. The diathesis being of a similar nature, the principles of treatment adapted for counteracting the original tendency to it must be also similar." And, as a medicine, muriatic acid was used to change the diathesis from the oxalate of lime to the lithic acid.

The author finds that the two deposits together may be met with daily on careful examination, by the microscope, of the urine in different cases of disease; and if the examination is made at different hours of the same day on a case in which oxalate of lime occurs, we shall not unfrequently find, three hours after food, that instead of urate of ammonia being mixed with the oxalate of lime, there is phosphate of lime and oxalate, and no urate of ammonia. Thus at one hour we may find oxalate of lime alone; at another, oxalate of lime with urate of ammonia; and at a third examination, oxalate of lime and phosphate of lime, or phosphate of lime only; the variations in the acidity of the urine being the chief cause of the differences in the deposit.

Oxalate of lime is so insoluble in distilled water that it might well be considered to be insoluble in the urine. Its occurrence in the form of crystals shows, however, that it cannot be insoluble; for crystalline form implies deposit from solution. Careful observation of the urine also shows that the oxalate of lime is soluble therein.

It requires no skill and no preparation of the urine to find the oxalate of lime. The urine should be left to stand for twenty hours in a bottle or tall glass; the upper part of the fluid should be poured off, and the last few drops remaining in the glass or bottle should be examined. A magnifying power of 320 times is generally sufficient, but the crystals are sometimes so small, that twice this power is necessary to determine the form. Generally oxalate of lime octahedra are thus found without the least difficulty, sometimes in large single crystals, very frequently in aggregations of small octahedra, forming

microscopic calculi. Dr. Golding Bird was the first observer who stated that these crystals, which had for some time previously been observed in urine, were oxalate of lime. The chemical proof is difficult, if not impossible, to obtain, for the octahedral crystals are rarely present in sufficient quantity to admit of perfect examination.

Art. 36.—*Ready Test for Sugar in the Urine.*

A strip of any kind of tissue that is not acted upon by chloride of tin,—*e. g.* white merino—is to be saturated with a strong solution of this salt, and then dried. Thus prepared, the tissue forms a convenient test of the presence of sugar in any liquid. A few drops of a very dilute saccharine fluid placed on the merino, and exposed to a temperature of from 260° to 300° Fahr., will immediately produce a dark brown or black spot.

By the help of this test the presence of sugar in the urine can be readily detected. Ten drops of diabetic urine, diffused in half a pint of water, would in this way yield a brownish-black spot. Ordinary urine, urea, and uric acid, produce no result of this kind.

Medical Gazette, April 5, 1850.

SECT. VII.—DISEASES OF THE SKIN.

Art. 37.—*Medicated Soaps for the Treatment of Skin Diseases.*

Sir H. Marsh uses the following preparations in chronic forms of skin diseases :—

1. *Sulphur Soap.*—Take of

White Windsor Soap, two ounces;
Spirit of Wine, coloured with alkanet root, one drachm.

Pound the soap in a mortar till all lumps have disappeared, add the spirit and beat into a paste, then add

Sulphur sublimed, 2 drachms;
Otto of rose, 10 drops;
Beat altogether.

2. *White Precipitate Soap*, as the above, substituting white precipitate for the sulphur.

3. *Red Precipitate Soap*, the same, substituting red precipitated mercury, 1 drachm.

4. *Corrosive Sublimate Soap*, the same, adding corrosive sublimate, 1 scruple.

Dublin Medical Press, Sept. 4, 1850.

Art. 38.—*Observations on Favus.* By Dr. Hughes Bennett.

(Reprint from the *Edinburgh Monthly Journal of Medical Science*, July, 1850.)

[This intractable skin disease is made the subject of a valuable clinical commentary by Dr. Hughes Bennett, whose histological accuracy entitles his observations to more than ordinary confidence. The mode of development of the disease being a matter of some doubt, we extract the following condensed account of actual experiments performed, with a view of determining the question :]

Dr. Bennett having taken requisite precautions to ensure the inspection of the earliest appearance of the disease, first observed minute pustules, containing normal pus. In a few days these broke, and formed a scab, which, under the microscope, was found to consist of epithelial scales and irregular amorphous masses, without any trace of vegetable structure. On the twelfth day, he detected, for the first time, small bright yellow spots, somewhat depressed. Examination of one of these exhibited a smooth, cup-shaped capsule, with a diameter of $\frac{1}{20}$ of an inch. On pressing this capsule between slips of glass, it was seen to consist of a fine granular mass, in which were numerous long-jointed filamentous tubes. It would therefore appear, that the first change is increased vascularity of the skin, and that the true favus does not appear until about the twelfth day. As this pustule developes, it retains the rounded form, unless it comes into contact with others, when it assumes an hexagonal or variously irregular outline.

Dr. Bennett has noticed that favus is usually manifested in persons of the scrofulous habit.

In discussing the causes of favus, the author mentions the experiments of Alibert, Gruby, and himself, made with reference to its contagious nature. In his own case, the matter of favus was inoculated in various ways, and though it gave rise to inflammatory phenomena, and even ulceration, in no case were the true vegetable parasite peculiar to the disease transmitted. On the other hand, Remak is mentioned (Medicinische Zeitung, August, 1842), as having succeeded in inoculating himself with success ; and Dr. Bennett eventually did the same by following the same process.

The favus vegetable, the existence of which, it must be stated, is denied by several dermatologists of note, Mr. Wilson included, and which has received the name of the *Achorion Schonlæi*, is minutely described and figured by Dr. Bennett. It consists of cylindrical tubes, having a dichotomous branching of from $\frac{1}{400}$ to $\frac{1}{600}$ of a millimetre in thickness, jointed at regular intervals, and often containing molecules of a diameter from $\frac{1}{10000}$ to $\frac{1}{1000}$ mill. The hair which pierces the centre of the favus pustule is often healthy, but at other times it is brittle, and is seen to contain branches of the plant. The subjoined cut is a faithful representation of its microscopic appearances.

The *treatment* of favus is described by Dr. Bennett as depending on the following indications :—1st. To remove the constitutional derangement. 2d. To employ such topical applications as tend to prevent the development of vegetable life. The first indication is fulfilled in the general treatment of scrofula. The local treatment, favoured by

Dr. Bennett, is, after the crusts are well removed by poulticing, to keep the head constantly smeared with cod-liver oil, and to cover it with an oiled silk cap. The average duration of this treatment is stated to be six weeks.

Thalli, mycelia and sporidia, of the *Achorion Schoenleini*, showing the mode of reproduction. (Magnified 800 diameters linear.)

Art. 39.—*Use of Cod-liver Oil in some Cutaneous Diseases.* By Sir H. Marsh, Bart.

(*Dublin Medical Press*, Aug. 21, 1850.)

The author observes that many cases of skin disease are in fact cases of struma; as such they should be regarded, and as such should they be treated. It was this consideration which induced him, some years ago, to prescribe the cod-liver oil in those cases of cutaneous disease which were manifestly of strumous origin. Its effects were various; it did not appear to him materially to influence or alter the local disease; but when it did act favorably its action was on the system—renovating. With some it did not agree, and its use could not be persevered in; with others, though it did not disturb the stomach, and though taken regularly, yet it did not produce any markedly beneficial effects. In not a few instances, however, the salutary influence of this animal oil was clearly demonstrated; it did that which was most required, it checked the progressive emaciation, it restored the yielding health, it rebuilt, as it were, the tottering frame, and placed the patient in a condition which rendered him capable of bearing the treatment more especially necessary for the removal of the cutaneous disease. It did not cure the local disease, but it placed the patient in a condition to be cured. It alone cannot be relied on; other remedies

must be superadded; and these it enables the patient to endure. Hence, the cases of skin disease to which it is especially applicable, are those in which the general health is impaired, and emaciation in progress. To produce good effects it must be taken in full doses, and long persevered in.

Art. 40.—*Treatment of Psoriasis* By Dr. Thompson.

(*Practical Treatise on Diseases of the Skin*, 1850.)

With respect to the treatment of general psoriasis, the same plan is applicable (the author observes) to all its modifications. "If the opinion that the eruption is most commonly symptomatic of derangement, either acute or chronic, of the mucous membrane of the stomach, be correct, the indications to be fulfilled, he remarks, are 1st, to subdue that state; 2dly, to regulate the diet; and 3dly, to bring up the tone of the habit."

"If inflammatory gastric dyspepsia be present, and the pulse is moderately resisting, with pain when pressure is made over the epigastrium, the application of leeches or cupping on that region will be requisite; or, if the pulse be hard, and the patient plethoric, a moderate bleeding from the arm may be necessary. Rayer, Dr. Duffin, and Dr. Graves, are of opinion that general bloodletting is always useful, and that it may be repeated with advantage; I have rarely seen any necessity for its repetition. After venesection or leeching, small doses of pil. hydrarg., or pil. cal. comp., or hyd. cum creta, may be given at bedtime for a few days, and followed, each morning, by a small dose of castor-oil, or half a drachm of magnesia given in combination with a teaspoonful of lemon-juice. During the day, while the inflammatory state remains, the common saline mixture, in combination with four or five minims of dilute hydrocyanic acid, has a considerable influence in lowering the vascular excitement of the stomach. When this has been accomplished, the author has found small doses of bicarbonate of potassa, with from twelve to fifteen minims of tincture of henbane, in a fluid ounce and a half of the infusion of cinchona, sufficient to restore the tone of the stomach. The eruption gradually disappears as the normal condition of the mucous membrane returns. During the progress of the treatment the mind should be kept in as complete a state of repose as possible, and the exercise of the body should be such only as can be taken without accelerating the pulse, or causing fatigue. The diet should be completely free from stimulant properties; and consist chiefly of milk largely diluted with Seltzer water and farinaceæ, carefully avoiding spices, pickles, fermented liquors, and vegetable acids. In the progress of recovery, when animal food may be taken, pork in every form, fresh or salted, and fish, should be avoided. Nothing proves more serviceable than the tepid bath, at a temperature not exceeding 96 deg. of Fahrenheit, used every morning for the space of at least half an hour. It not only soothes the eruption, but it has an efficacious influence by sympathy

on the mucous membrane, tending to equalize the circulation, and consequently to relieve the vascular congestion of the stomach.

"When the disease assumes a chronic character, and has proved obstinate, the arsenical solution may be prescribed in doses not exceeding eight or ten minims at first, and gradually increased until headache, nausea, or pain at the epigastrium demonstrate that the medicine should either be left off or the dose greatly diminished. There seems to be a conservative power in the system labouring under psoriasis, which enables the arsenical preparations to be carried to an extent which I hesitate to mention; but their influence should be closely watched. M. Biett employs the arseniate of ammonia with marked success. The author has had no experience of its influence, as he usually derives every assistance required from the solution of the arsenite of potassa (liq. arsenicalis).

"In none of the varieties of the disease, with the exception of the local varieties, has the author seen much advantage derived from topical applications; and, in many instances, the least apparently stimulant substances aggravate the itching. In the most severe cases (psoriasis inveterata), where the eruption attacks the flexure of the arms and legs, the oxide of zinc ointment, or an ointment composed of one part of the compound lead plaster, three parts of lard, and half a part of the solution of diacetate of lead, affords temporary comfort, but nothing more. Dr. Merriman applied friction with a sponge dipped in tepid water, then squeezed dry, and covered with oatmeal. He rubbed the parts briskly, renewing the oatmeal; and lastly, having well washed the parts, and dried them, he applied neat's-foot oil over them, with a broad camel's hair pencil, and guarded them from the action of the air. The best topical remedy is the tepid bath."

Art. 41.—*On some Cases of Cancer of the Skin.*

By B. Partridge, Esq., f.r.s.

(*Medical Times*, May, 18, 1850.)

Of cancer there are various forms, the most common of which is scirrhus or carcinoma, well seen in the breasts of women, as consisting of a gray homogeneous mass, with fibrous striæ radiating through it, and containing oval, circular, or elongated cells, with granules or nuclei within them. The other kinds are, the encephaloid and the colloid or reticular, but it is to the first mentioned that the author directs attention, it being the variety which most commonly affects the skin. Other kinds do, however, occasionally occur in this part. The author has on the table a specimen of disease of the great toe, in which the skin alone is affected, being changed into a dirty white tuberculous mass. In the Museum of King's College there is a preparation of a melanotic tumour, from the side of a middle-aged woman, involving only the skin.

Any part of the integument may become affected, but in those localities where it borders on mucous membrane, as the mouth; in those in which the skin is particularly sensitive, delicate, or highly vascular; in those parts where the skin has much cellular fibrous

tissue lying beneath, as the scrotum; and in those where it is generally exposed to irritation, as the lips and foreskin, we see malignant disease usually manifest itself.

Cancer of the Lip.—This begins usually in the lower lip, either as a small, firm, hard tumour in its substance, or with a superficial ulceration and scab. These scabs are flat, round, dirty-looking, and from their sides, after a time, exudes an ichorous discharge of pungent stimulating matter. The scabs, in the first stage, frequently fall off and are renewed.

Carcinoma of the lip may occur at an early age, but generally at or after the middle period of life; it sometimes happens in young persons, but the author does not remember seeing a child affected by it. And here he would premise that doubtful cases may often be satisfactorily diagnosed by the effect which escharotics and stimulants have upon them; for these, when they affect only the surface of the disease, injure the cancer, while they do good to ulcers. A man lately under my care had a chronic ulcer of the tongue, thought by some to be malignant, but it healed up under the application of nitrate of silver. This disease is more common among men than among women. The usual exciting cause is local irritation. In the lower classes it is said to be often *caused* by the clay pipes which they smoke. This, however, cannot be received as a true explanation, when we consider the immense number of those who smoke, and the comparative infrequency of cancer of the lip, for it is not so common in this part as in the genital organs. There is at present a man in the house, in whom the disease commenced on the left side of the mouth, with which he had been accustomed to smoke; it generally commences on the opposite side. It may, however, occur in persons who do not smoke, and then often originates from the irritation of biting a warty tumour on this part. The author has lately had under his care a case of this kind. A young lady was frequently in the habit of biting and picking a small chapped fissure in the centre of her lower lip; the consequence was, that it took on a malignant aspect. It was cured by removal. It may be stated, as a rule, that irritation serves to excite the disease in a particular spot only when there is a previous cancerous diathesis. It is not made out that this predisposition is shown, or that it can be recognised in an individual. Cancer of the lip is rarely accompanied with a similar disease in another part of the body. As the disease progresses it ulcerates, and spreads towards the skin, eating away portions of the lip, and forming firm, large, tuberculous projections, with a peculiar spreading, overhanging surface. The discharge is thin, dirty-looking, watery, and pungent; often so sickly and offensive that the attendants are unable to remain long in the room. There is at present a woman in a small ward at Middlesex Hospital, with cancer of the genitals, with a discharge so foul, that the nurses could hardly be prevailed upon to attend to her. This has to a great extent been got over by ventilating the room with Clarke's blower, which has proved very useful for this purpose. The labial and sub-maxillary absorbent glands enlarge as the disease spreads over the chin and upper lip, and the bone sometimes becomes affected.

Death takes place from exhaustion consequent on the inability of

the patient to take food, or on hæmorrhage. In the case of the late Professor of Botany at King's College, the disease had been apparently removed, but it returned in the lip, the glands became ulcerated, and he died from hæmorrhage.

The rapidity of progress varies much in different individuals. If they be of melancholic temperament, and the constitution be impaired, its extension is rapid ; if the general health be good, and the temperament of the patient quiet or cheerful, the progress is slow. In the neighbourhood of mucous membranes, especially about the anus and lip, the progress is more rapid than in other parts, in some of which it may continue for many years. The author had under his care an old woman labouring under a scirrhus ulcer, commencing from a wart below the umbilicus, which she picked into a sore the size of a shilling. He determined on not removing it ; in the course of two years it had only increased to the size of half-a-crown. The severe pain which she suffered was readily allayed by remedies.

Syphilitic ulceration has been mistaken for cancer, but may be diagnosed, among other methods, by the influence which mercury possesses over such sores, as well as the benefit which follows from the application of black wash and nitrate of silver to their surface, which we have before stated to injure a cancerous ulcer. In psoriasis labialis, the lip often becomes thick and inflamed, but its chapped and scaly appearance readily distinguish it from the first stage of malignant growth. The same means of diagnosis may be applied to these diseases when affecting the eyelids. A short time since, the author had under his care a patient suffering from an ulcer of the eyelid, with sharp defined edges. This was soon cured by the exhibition of mercury,—showing its syphilitic origin. Again, cancer and lupus may be mistaken for each other. The former begins usually in one pimple, around which it spreads ; the latter in many spots, which run into each other by ulceration.

Removal by the knife is the treatment attended with the greatest success, as well as the least pain. Escharotics, if preferred, are less objectionable in any part of the body than in the lip. Arsenic has been in great repute, but it is not well to employ it, as it becomes absorbed into the system, and the patient may be poisoned. As a local application, chloride of zinc, mixed into a thick paste, with flour or marble, in equal proportion, or more dilute, is decidedly the best. It is well to begin with the weaker mixture, which should be spread on lint, and applied over the part. It causes very severe pain. In a few hours it should be removed, and the part washed and poulticed. An old gentleman applied to the author with a cancer of the nose, which had been incompletely excised, and had consequently returned. Finding that it could not be cut away without removing a considerable portion of the organ with it, the author determined on using the chloride of zinc, and the patient completely recovered, with comparatively little loss of substance.

The plan recommended by the French surgeons is the application of lint, which has been soaked and thickened by maceration in nitric acid. The adjoining surface of the skin should be previously pro-

tected. It has this advantage, that it causes but a momentary pain, whereas the zinc causes pain for many hours.

Should the knife be resorted to, do enlarged glands connected with the disease forbid the operation? Not if they be removable, otherwise it is better to leave the cancer alone unless it be of small size, and growing very rapidly. There is, at present, in the hospital, an Irishman, whose lower lip is extensively diseased; below his chin are several firmly adherent enlarged glands. The author has, therefore, thought it advisable not to operate.

The operation for its removal is performed by some with a pair of curved scissors, but this proceeding is not usually adopted in England, unless much of the lip is diseased in a lateral direction. The best plan is by a V shaped piece, cut out sufficiently large to include the whole of the cancer, the great gap thus formed is readily closed and kept together by harelip pins, with the twisted suture of thick thread. Formerly the suture was placed upon a silver canula supposed to be less irritating; but a common needle, with a lancet-shaped edge, tempered so as to be a little flexible, answers equally well. The needle should not be passed through the mucous membrane, but down to it, so as to ensure pressure on the vessels which lie close against it. This generally proves sufficient to prevent hæmorrhage.

As wounds in this neighbourhood rapidly unite, the needles may be removed about the third or fourth day. If the gap be very large, it will be better to remove them later and not all at once, and the part must then be supported with straps of plaster, or an interlacing bandage. In some cases a gap is left at the lower part of the wound, forming a salivary fistula. This, if small, is easily closed by keeping a sponge against the inner extremity of the opening, and applying escharotics, or the actual cautery externally.

Is the result sufficiently satisfactory to warrant the removal in this manner? The author's experience leads him decidedly to recommend it, for he thinks that the cure is more frequent than the return of the disease. Some, however, as Travers and Cruveilhier, speak of it as so hopeless that they doubt the propriety of the operation. But it is well known that in this, as well as in other parts, the effects of the disease are staved off by the operation, and often for a considerable time, in those cases where a cure is not effected.

Carcinoma of the Penis.—Malignant disease of the penis is generally cutaneous, and rarely assumes any other than the scirrhous form. Its ordinary site is either the prepuce, frænum, or glans. It usually begins on the interior of the prepuce, spreading thence to the glans, or appears simultaneously on these two parts. Persons with congenital phymosis are seen most frequently to suffer from it. Out of nine cases related by Hey, seven had phymosis. The secretion which collects under the foreskin acts as a powerful exciting cause. Jews are said never to have it, and the same is probably true of the Mohammedans. It is also said to be less common among barbarian than civilized nations,

It almost always occurs after the middle period of life. A case at present in the Hospital, and on whom the author operated a short

time since, forms an exception to this rule. During the progress of the disease the foreskin becomes thickened, œdematous, and tender; there is an ichorous discharge, and red excrescences peep out from the orifice of the foreskin and turn over its margin, or the disease ulcerates through the skin.

The same rules for diagnosis which have been mentioned above, in speaking of the lip, will apply to this locality. There is, however, another disease with which it may be confounded. Warts may be recognised by the chinks which dip between them down to the skin on which they grow. The space from which they spring by pedicles is small, compared with the extent of their surface. They are often dichotomous. They are readily got rid of by simple excision, or by escharotics.

When removing a malignant growth from the surface of the penis, we must examine carefully whether the corpora cavernosa be involved; if so, the penis should be amputated behind the disease, leaving as much of the healthy structure as possible, in order that the penis may be left of sufficient length for impregnation to take place, which it has been known to do in such cases. Previous to paring the surface, an instrument should be introduced into the urethra, to guide the operator, that he may avoid opening this canal. Some have proposed the removal of the penis by ligature. Its advantage is the prevention of hæmorrhage, and it may be advisable in some few cases; but such have not come under the author's own observation. He related a case where, in consequence of the repeated hæmorrhage, he was obliged to tie the penis, and apply styptics. He had a case in which the slight use of the actual cautery was necessary. The bleeding, which is chiefly from the veins, usually stops without difficulty. The arteries requiring ligatures are the two dorsal, the arteries of the corpora cavernosa, and one in the urethra.

When the amputation is done near to the pubes, it is necessary, on account of the retraction of the penis, for an assistant to hold this organ with his fingers or a pair of forceps, either before or after an incision has been made through the skin. As the skin is abundant, and readily adheres to the stump, it is not necessary to apply sutures, if this be done the urethra must be slit up.

A troublesome consequence of this operation is stricture of the orifice of the urethra, which some endeavour to overcome by the use of a flexible catheter, introduced after the operation, but this often causes much irritation without being productive of benefit. The best plan is that recommended by the late Mr. Earle, of Bartholomew's Hospital, namely, the slitting of the lower part of the urethra, turning out the corners, and uniting them by a stitch on either side to the adjacent tissues. If a stricture form, a bougie must be used, or, still better, a metal stiletto, which can be introduced by the patient himself. Is the presence of enlarged glands in the groin a valid objection to the operation? One of Hey's patients had had escharotics and stimulants applied to the penis, which irritated and inflamed the glands in the groin. The penis was, however, amputated, and the swelling subsided. Two other cases in which the glands were removed did well. The author has followed the same practice with success.

There are cases in which the glands in the pelvis are enlarged, and the penis so affected that we cannot remove all the disease, and yet amputation is justifiable even in these, when the organ is so enlarged, and the discharge so profuse, as not only to annoy, but to threaten the rapid destruction of the patient. It must not be followed in old persons, in whom there is a cancerous predisposition, and who may have other organs affected.

There are various reasons which appear to prove that cancer is not contagious. Women, as we are aware, are very subject to malignant disease of the womb, and their husbands often continue to have connection for a long time after the disorder has manifested itself, and yet the author does not remember a single case in which the husband was similarly affected. There is another fact which also seems to contradict this supposition, namely, that the discharge from cancer, when affecting the womb and upper part of the vagina, drops down, and is for a long time in contact with the lower wall, yet the disease does not become developed in this locality, but extends around the part it first attacked.

SECT. VIII.—MATERIA MEDICA AND THERAPEUTICS.

Art. 42.—*On the Use of a Stream of Warm Water in the Treatment of Local Inflammation.* By Dr. F. H. Gordon.

(*New York Journal of Medicine,* May, 1850.)

Dr. Gordon states, that he has for years been in the habit of using the above means in the treatment of local inflammations, and that he is acquainted with nothing that surpasses it. Cups, leeches, blisters, and the lancet do not equal it. The stream is, he remarks, a mode of applying warm water which complies with all the conditions requisite to make it efficacious. It is *more constant*, may be *longer continued*, and applied with *more force* than any other application of water. The stream may be conducted almost without variation of temperature or force for hours, and, falling *only upon the suffering point*, it does not prostrate the patient like the bath, and hence may be continued long enough to greatly subdue the local inflammation before there is much depression of the vital powers. The *force* of the stream is an item of peculiar importance, because it is incomparably greater than that of any other mode of using warm water. It is a well known fact, he observes, that *fluids in motion* manifest their peculiar powers in a much higher degree than when at rest. The sultry air of a summer's day, which almost melts us by its quiescence, may, when put in motion, make hail, and chill the body. Electricity, which gently pervades our bodies at all times, and stimulates all of the vital movements without misrule, if disturbed in its equilibrium and transmitted through the organs, with its incalculable velocity, will produce instant disorganisation and death. Caloric, which pervades all of the tissues, and without which the vital functions could not be performed

for one moment, does no injury while latent or in gentle motion; but when a large amount passes in or out of any point of the surface in a short time, destruction is the instant result. In like manner, water at rest in contact with the body will abstract or impart caloric, according to its temperature, in so gradual a manner as scarcely to be observed; but when a swift current strikes the surface, its effects are manifestly proportionate to its velocity.

Art. 43.—*The Therapeutic Uses of Turpentine.* By Dr. Thomas Smith.

(*London Journal of Medicine*, April, 1850.)

Dr. Smith informs us, that as a *vermifuge and purgative*, turpentine ought never to be given alone, in large doses during the winter, or in cold, damp weather; because it then, like other hydrocarbons, tends to supply fuel for the evolution of animal heat, rather than to exert any therapeutic properties. Moreover, in winter, cerebral congestion may intervene; in summer, intractable diarrhœa, if given in very large doses. Dr. Copland relates a case in point.

Turpentine is a valuable addition to other purgatives. The author mentions a lady who, after using the most drastic purges in vain, was able to regulate her bowels with the combination of ten drops of turpentine, and a teaspoonful of castor-oil. Whatever be the object with which turpentine is exhibited as a purgative, whether for the expulsion of parasites, or as a revulsive in cerebral affections, Dr. Smith advises that the dose should never exceed half an ounce, and that it should be united with some other aperient, as castor oil, infusion of senna, sulphate of magnesia, or decoction of pomegranate, so given, it rarely produces strangury. If this quantity fails to evacuate a tænia, a larger quantity will equally fail.

As a *diuretic*, the dose may be from five to thirty drops in aromatic water, or with Cheltenham or Harrowgate water.

As an *astringent*, in doses varying from twenty minims to a drachm, according to the urgency of the symptoms, and repeated every three or four hours, Dr. Smith considers turpentine to be one of the most efficacious remedies which we possess. The best vehicle for its administration, in the first place, is water, flavoured with syrup of orange, or any other agreeable aromatic. It may afterwards be advantageously combined with any other therapeutic agents, which the special nature of the case may require: thus, in epistaxis depending upon rupture of one or more small vessels, and where much arterial blood has been lost, muriated tincture of iron will form a valuable adjunct. In hæmatemesis and other sanguineous discharges from the the bowels, it may be united with compound infusion of roses, sulphate of magnesia, iced-water, and solutions of tannic or gallic acid. In some forms of hæmoptysis, it may usefully be added to infusions of matico; in hæmaturia, to the decoctions of uva ursi, chimaphila, pyrola, &c.; or to tincture of sesquichloride of iron, &c. In purpura hæmorrhagica, the decoctions or infusions of the barks form with it an excellent adjuvant. In hæmoptysis, it has speedily and effectually arrested the hæmorrhage; and is a much safer remedy than lead.

In the author's experience, there is no single medicine in the materia medica that can be compared with it as a *styptic*, either as to certainty of action or to the safety of its effects. It is compatible alike with acids and alkalies.

The *external use* of turpentine has been very general for a great number of years, alone or combined with other rubefacients, such as mustard, strong liquor ammoniæ, pyroligneous acid, cajeput oil, wine of hellebore, colchicum or opium, tartar emetic, croton oil, &c. It has very frequently been found of permanent utility, when applied as a warm epithem to the skin in pulmonary affections. Its action is two-fold; first, it induces rapid though often transient counter-irritation; secondly, its vapour is inhaled into the lungs, and by its constringent operation on the extreme capillaries of the pulmonary texture, is not infrequently productive of great relief in some affections of these organs. For the purpose of inhalation, the author is in the habit of dispersing its vapour through the room by evaporating water containing a portion of it, by the aid of a spirit lamp. Thus diffused through the atmosphere, he has seen it afford marked relief to pulmonary symptoms.

At a bath, Dr. Smith has also used it with advantage under the form of the camphine of commerce, mixed with soda. The proportions are, soda two pounds, camphine half a pint, oil of rosemary half an ounce. He states that it calms the pulse, softens the skin, and renders the respiration freer.

Art. 44.—*Uses of the Nitro-Muriatic Acid Bath.*

By Ranald Martin, Esq.

(*Lancet* and *Prov. Med. and Surg. Journal*, Sept. 18, 1850.)

Mr. Martin, in some valuable papers on tropical diseases, gives the following directions for the preparation and use of the acid bath:—

Take of hydrochloric acid, three parts; nitric acid, two parts; distilled water, five parts, mix carefully.

1. Of this dilute nitro-muriatic acid, three ounces by measure are to be added to each gallon of water, to form the bath.

2. Two gallons of water may suffice for an ordinary foot-bath.

3. The bath thus prepared will keep in use for a week, by adding to it, once every day, half an ounce of the dilute acid, and a pint of water, in order to make up for waste in evaporation.

4. A portion only of the bath is to be heated for use, after which it is to be added to the remainder, so as to make the whole of from 96° to 98°.

5. Let both feet be placed in the bath, while the inside of the legs and thighs, the right side over the liver, and the inside of both arms, are sponged alternately; or let the abdomen be swathed in flannel soaked in the bath. This should be continued for fifteen minutes morning and evening.

6. While using the bath, a gentle aperient, as Cheltenham or Epsom salts, in some bitter infusion, should be taken every other morning; and, should there be dryness or harshness of the skin, a warm vapour-

bath, used twice a week, will be found of much service in stimulating and opening the pores, and in purifying the surface of the body.

7. In urgent cases, a general bath to envelope the whole body should be used, the proportions of the dilute acid and water being continued as above stated.

8. Earthen or wooden vessels should be used for the baths, and the sponges and towels kept in cold water, lest the acid corrode them.

9. The acid mixture forming the bath should be heated in earthenware vessels—large pipkins for instance. When used, the temperature should be measured by the thermometer, at 96° and 98°, as the body will be chilled by a degree of warmth that feels comfortable to the hand.

10. When a general bath is used for the whole body, the patient, before going into the bath, should be covered over with blankets, until a gentle perspiration is induced.

11. When in the bath, a covering blanket should be drawn over the shoulders, and up to the chin, to confine the steam, and a night-cap should be worn to protect the head from the steam.

12. Before quitting the bath, the bed, drawers, and towels should be warmed and ready; the body to be dried while standing in the bath, and the dressing to be performed immediately.

13. When the acid-bath excites much irritation of the skin, the quantity of dilute nitro-muriatic acid may be diminished; and when irritation of the gums, with general malaise, occurs, the use of the bath should be relinquished for a time, resuming its application, if necessary, when the above symptoms have subsided.

Mr. Martin states that a course of two months of this bath is found generally to restore the healthy action of the liver; nor does it interfere with the use of bitter tonics, or even with mild chalybeates, but, on the contrary, it rather gives effect to their operations. In the severer instances he has continually to use this means for a much longer period. In treating torpor of the liver, he recommends warm and tepid baths, and especially those of sea-water, in aid of other medical treatment, reducing the temperature as the patient approaches health, and after the cessation of other means of cure.

The neglect of the nitro-muriatic acid treatment in cases of the nature here treated of, and in which mercury, in every form, proves not only insufficient but pernicious, is much to be regretted.

A valuable quality of the nitro-muriatic acid is, that whether exhibited internally or externally, its influence in promoting the secretions is not in the least degree counteracted by opium, even when exhibited in the largest doses. We obtain, in short, from the use of the mineral acids in the treatment of chronic disease, all the remedial aids which can be obtained from mercury in the treatment of acute disease; and that, without any of the injurious consequences that so frequently ensue from the exhibition of the last-named agent. Persons of anæmic or of scrofulous habit are liable to serious injury from the use of mercury, whether given in large doses, during a few days, or in alterative doses during weeks or months. It is quite otherwise in respect to the acids, the most marked and lasting improvement of the general health being the ordinary result of their exhibition.

Art. 45.—*Remarks on Vermifuges.* By Dr. Cazin.

(*Journal de Médecine et de Chirurgie. Dublin Quarterly Journal,* May, 1850.)

Dr. Cazin has given an account of various forms of medicine employed as anthelmintics, speaking first of spigelia. This he administers in the form of decoction, prepared by boiling two drachms of the herb in a quart of water to one half. The decoction is then expressed, strained, and flavoured with a little lemon-juice and a sufficient quantity of sugar. The dose for an adult is two wine-glassfuls, followed by a wine-glassful every six hours until the desired effect is produced. To children and delicate persons a smaller quantity is to be given.

Wormwood (absinthium) is an excellent indigenous anthelmintic; it is also a powerful tonic and stimulant, the use of which, continued after the expulsion of the worms, prevents their reproduction. M. Cazin often uses a wine prepared by digesting an ounce of wormwood, with an equal quantity of garlic, in a bottle of white wine, of which he gives from one to three ounces every morning. This wine is well adapted for poor lymphatic subjects, wasted by wretchedness, and suffering from the influence of a marshy soil. The absinthium maritimum is likewise a very good anthelmintic. M. Cazin gives it to the extent of one or two drachms boiled in four or five ounces of water, with the addition of some white sugar, or of any anthelmintic syrup. This is quite a popular remedy in the maritime districts, and almost always succeeds with children affected with worms.

Although a case of poisoning by Cevadilla has been reported, M. Cazin has administered this vermifuge with success in cases in which ordinary anthelmintics had but little effect; but he has always commenced with a very small dose, in order to ascertain how far it would be borne by the digestive organs. For children, the dose of this plant is from a grain and a half to four or five grains of the powder of the seeds, mixed with syrup of rhubarb; for adults eight or nine grains, with the addition of a little sugar and a few drops of oil of fennel. In each case the dose is to be repeated daily for four days, after which the infusion of chamomile is to be given.

Assafœtida possesses acknowledged anthelmintic properties, and is suitable for cases of sympathetic nervous affections produced by the existence of worms. It thus, like valerian, fulfils a two-fold indication. In a case of nervous affection, which M. Cazin believed to be idiopathic, the administration of assafœtida both determined the disease and revealed its true cause, by effecting the expulsion of a number of lumbrici. The result has, in three cases of chorea and in two of epilepsy, enabled to recognise that sympathetic irritation—depending on the presence of intestinal worms—was the sole cause of disease in these instances. Under ordinary circumstances, M. Cazin frequently combines assafœtida with calomel in pills. This combination, of all those that he has employed, succeeds best in expelling lumbrici. He has also combined it with black oxide of iron, particularly in anemic patients. Assafœtida may be given in powder, in doses of from four grains to half a drachm.

The essential oil of turpentine is not merely useful in cases of tænia,

it is also decidedly efficacious in expelling the lumbrici. M. Cazin has sometimes, in cases of lumbrici and ascarides, administered with advantage turpentine, enemata, prepared by suspending, by means of yolk of egg, from one drachm to half an ounce of the oil in decoction of tansy, absinthium, worm-seed (semen-contra), or Corsican moss.

Common salt is very destructive to worms ; it is given alone in large doses dissolved in water ; it should be taken on an empty stomach. M. Cazin also frequently administers it in the form of enema, with brown sugar, linseed or poppy oil, and a sufficient quantity of water. With children it almost always succeeds.

Like all tonics, iron has the advantage of destroying worms, at the same time, that, by imparting tone to the intestines, it prevents their reproduction. From six to eight grains of iron filings, mixed with an equal quantity of rhubarb, and taken twice or three times a day, have often been sufficient to expel the worms contained in the intestines. M. Cazin succeeded in rapidly curing a boy nine years of age, emaciated and pale, whose sleep was disturbed, and who was suffering from spasmodic movements similar to those which characterise chorea, by the exhibition of pills of sulphate of iron, combined, according to Fuller's formula, with aloes, senna, &c., under which treatment he voided twenty-three lumbrici in four days. He has also used with remarkable success Bosen's mixture, containing extract of black hellebore and sulphate of iron. But what he chiefly gives to children, as well as to adults, is the syrup of citrate of iron (four parts of citrate to sixty of simple syrup, and one of essence of lemon), in doses of from two drachms to half an ounce to children, and from half an ounce to two ounces to adults.

M. Cazin remarks that calomel, so efficacious as an anthelmintic, ought never to be combined with an alkaline chloride, as the formation of corrosive sublimate would probably ensue from their admixture. In like manner, the combination of calomel with cherry-laurel water, or emulsion of bitter almonds, would give rise to the development of two formidable poisons, corrosive sublimate and cyanide of mercury.

The effects of the male fern, tin, pomegranate bark, hellebore, &c., require merely to be noticed ; and the properties of the pomegranate root bark are so well known that they need not be dwelt upon. M. Cazin has remarked nothing particular respecting other anthelmintics. He merely says that cod-liver oil has succeeded with him in the cases of two females, one of whom passed twelve lumbrici the same day that she had taken in the morning three table-spoonfuls at intervals of an hour.

But, whatever be the medicine selected, we must not, like routine practitioners, be content, when the worms are killed and dislodged, with this merely palliative cure. A very important indication remains to be fulfilled, viz., to prevent their reproduction. This object is attained, according to M. Cazin, by the adoption of a tonic and stimulant regimen, which must be long continued, and, above all, by the employment of bitter and chalybeate preparations. He has found the ferruginous chocolate to be sufficient, in the case of children, to prevent the relapses which are for many years very apt to occur. Wine

taken while fasting has succeeded with the poor inhabitants of the marshes, accustomed to live only on vegetables and milk; and he has also remarked its efficacy as a preventive of worm affections in other instances.

[To these observations of M. Cazin, the editor of the 'Journal de Médecine' has appended the following practical remarks:] The number of experiments tried by M. Cazin leaves no room for doubt respecting the enormous amount of worm affections which he must have met with. Such a result may appear strange to Parisian physicians, who attribute to the presence of worms in the intestines only a very trifling influence over the symptoms formerly ascribed to them. But if worm affections are rare among the inhabitants of large towns, they are frequent and generally more serious among the peasantry, and particularly among those who are poor and placed in unfavorable hygienic circumstances. We shall, therefore, take the present opportunity of mentioning the efficacy of *brown santonine*, lately brought under the notice of the readers of the 'Bulletin de Thérapeutique,' by M. Gaffard, an apothecary at Aurillac.

The difficulty experienced in procuring pure santonine, both on account of its high price, and for other reasons, has induced M. Gaffard to endeavour to obtain from *worm-seed*, a product which may possess the advantages of the former, and at the same time be free from the objections to the use of the latter. This product he calls brown or impure santonine; it is obtained in the following manner:

Take of Aleppo worm-seed, three ounces; carbonate of potash, one ounce; slacked lime, sifted, half an ounce; water, from three pints to three pints and a half. Place the mixture on the fire, stirring occasionally with a wooden spatula; let it boil for an hour; on removing it from the fire pass it with expression through a linen cloth, let it settle, decant, and add hydrochloric or nitric acid until it reddens litmus without being sensibly acid to the tongue. Allow it to rest, pass it through a filter previously moistened, or through a piece of close canvas, and allow the product which remains on the filter to dry in the open air until it acquires the consistence of firm butter. This product, which is a mixture of santonine, resin, and essential oil, will answer for the various pharmaceutical forms in which the practitioner may wish to exhibit it. M. Gaffard gives it in the form of lozenges composed as follows:—

Brown santonine, three drachms; powdered sugar, thirteen ounces; powered gum, one ounce and a half; essential oil of lemon, twenty-five drops. Place the brown santonine in a marble mortar; add by degrees, and with constant trituration, the sugar mixed with the essential oil and the gum, so as to make a homogenous powder. Form with a sufficient quantity of water a mass of the desired consistence, and divide it into lozenges, each of which shall weigh, when dried, fifteen grains; each lozenge will then contain somewhat more than one third of a grain of brown santonine.

For infants under six months the dose will be one lozenge night and morning; from six months to a year, two lozenges night and morning; from one to two years, three, and from two to four years, four

night and morning; for children of five years and upwards, a lozenge for each year of the child's age should be given night and morning. The medicine to be continued until the desired effects are no longer produced.

Art. 46.—*The Kousso,—a New Anthelmintic.*

By Jonathan Pereira, M.D. F.R.S.

(*Dublin Medical Press and Pharmaceutical Journal*, July 17, 1850.)

The Kousso, or Brayera Anthelmintica, is an Abyssinian tree twenty feet high. Branches round, rusty, tomentose-villose, marked by the annular cicatrices of the fallen leaves. Leaves crowded, alternate, interruptedly imparipinnate and sheathing at the base. Leaflets oblong, or elliptical lanceolate, acute, serrate, villose at the margin and on the nerves of the under surface. Stipules adnate to the petiole, which is dilated at the base and amplexicaul. Flowers diœcious, small, greenish, and becoming purple; repeatedly dichotomous; the pedicels with an ovate bract at the base.

The so-called male flowers may be regarded as hermaphrodite flowers, inasmuch as the carpels are well developed. The female flowers are somewhat different in their structure. The outer segments of the calyx are much more developed than in the female flowers, and are four or five times larger than those of the inner row, and are placed somewhat below them; the petals are entirely wanting; the stamina are rudimentary and sterile. The ripe fruits are unknown.

The tree grows in Tigre, Agame, and Shoa; it is cultivated everywhere, and Dr. Beke writes that the tree is "found throughout the entire table-land of North-Eastern Abyssinia, but appears to require an elevation of upwards of six thousand (perhaps of seven thousand) feet for its growth. Where I found it most luxuriant was in the vicinity of the source of the river Abai (Bruce's Nile), at an elevation of close upon nine thousand feet. Tigre, the northern portion of Abyssinia, being, on the whole, of lower elevation than the rest of that country, the tree is only found there in a few places."

Bruce describes the flowers as being of a greenish colour, tinged with purple, and when fully blown of a deep red or purple. The petals, he says, are white.

Preparation.—Mr. Johnston states, that the kousso is gathered for medicinal purposes before the seeds are quite ripe, whilst still a number of florets remain unchanged. The bunches are suspended in the sun to dry, and if not required for immediate use are deposited in a jar.

Pharmacography.—The author has seen only one package of kousso; this was kindly opened in his presence by M. Simond, of the firm of Caylits, Simond, and Co., the agents of M. Rochet d'Hericourt. It was a deal box containing about 30lbs. of the dried flowers, wrapped up in a large skin of red leather. On removing the lid of the box and untying the leather package, the fragrant or balsamic odour of the dried flowers was very powerful. It appeared to him to be somewhat similar to the combined odours of tea, hops, and senna leaves. The flowers had apparently undergone no preparation beyond that of desiccation. The bunches of flowers were perfect and unbroken,

though of course compressed. The general colour of the dried mass was greenish-yellow; but when the flowers were more closely examined, the edges of the petals were seen to have a reddish or purplish colour. The taste of the dried flowers is at first not very marked, but after a few minutes a feeble, senna-like, acrid, unpleasant taste becomes perceptible. By soaking the dried flowers in water, they may be unfolded sufficiently to determine their botanical characters, which have been already described. When submitted to microscopic examination, the hairs are perceived to be simple lymphatic hairs, tapering at the distal extremity. In Abyssinia, two sorts of kousso are distinguished, viz., first, the *red* kousso produced by the female flowers; secondly, the male flowers known as *kousso esels*. In commerce the two sorts are always mixed together.

Adulteration.—Considering the enormous price (about 1*l.* 15*s.* per ounce) at which kousso has hitherto been sold in Paris, and the very limited quantity originally supplied by M. Rochet d'Hericourt, it cannot be surprising that the article should be extensively adulterated. Indeed the author has been assured, on credible authority, that the powder now selling as kousso is, in fact, the powder of pomegranate bark, and that legal proceedings have been commenced in Paris to put a stop to the fraud, which is well calculated to injure the reputation of the genuine Abyssinian remedy. He has no doubt but that the microscope would readily detect the substitution; but the surest way of obtaining the genuine article is, to purchase the dried flowers in the entire state, not in the form of powder.

Although it is not improbable that the anthelmintic property of kousso may in part depend on tannin (since the pomegranate bark, which contains this principle in abundance, is, like kousso, also an anthelmintic), yet what may be termed the peculiar property of the kousso probably resides chiefly in the bitter acrid resin. This is soluble in alcohol and in ether, and appears to be a neutral body, manifesting neither distinct alkaline nor acid properties.

By boiling the dried plant in water a fragrant odour is evolved. No doubt this, as well as the odour of the dried plant itself, depends on the presence of a *volatile oil*, of which, however, no mention is made in Wittstein's analysis, the oil being present in too small a quantity to admit of its collection when small quantities of the flowers are operated on. It is not improbable that the anthelmintic properties may, in part, depend on this oil; for Schimper states, that in Abyssinia the plant is considered to have lost its anthelmintic powers in the third year after its collection. In Europe, however, it retains its powers for a longer period (on account of the cooler climate?); for the flowers which have been used for all the recent experiments have been collected more than four years, and we are told in the shop-bill of a Parisian pharmacien, that they may be kept for an indefinite period.

An infusion or a decoction of kousso strikes a dark green olive tint with a solution of the sesqui-chloride of iron.

Medicinal Properties.—Neither botanical characters, sensible qualities, nor chemical composition, would have induced us to suspect that kousso possesses the valuable anthelmintic properties which experience

has shown that it does. The general and prevailing quality of the rosaceæ is astringency, dependent on the presence of tannic and gallic acids. This is observed in the flowers (*e. g.* rose-petals) as well as in other parts of the plants. In this quality kousso agrees with its congeners. But it can scarcely be on this that its vermifuge property solely depends; otherwise rose-petals, or any other equally powerful astringent, would be as effective in expelling worms as these Abyssinian flowers. But in rosaceæ, as in many other families of the vegetable kingdom, anomalies exist, and to this head we must, for the present, be content to refer kousso.

Our confidence in the anthelmintic properties of kousso rests, then, on experience only: and the evidence on this point is very strong. All modern travellers in Abyssinia are agreed on the great success of the remedy on the natives of that country; and the experience of physicians in France, England, Germany, and Switzerland, confirms the favorable reports made by those who have seen the kousso used in its native country.

In Paris it has been employed with great success by Chomel and Sandras, as well as by numerous other distinguished physicians. In London, our experience of it is much more limited; but the successful results of its use in King's College Hospital, in the hands of Drs. Budd and Todd, and of Dr. Gull, in Guy's Hospital, confirm the favorable reports of its efficacy which had reached this country from abroad.

The physiological effects of kousso are not in general very great. Sometimes it excites a slight sensation of heat, nausea, or even vomiting, creates thirst, and frequently, perhaps usually, a gentle action on the bowels. But the latter is commonly so slight, that in a considerable number of cases it is necessary to follow its administration by a mild purgative. It is obvious, therefore, that the efficacy of kousso as an anthelmintic does not depend on its purgative or evacuant influence, but on its poisonous or toxic action on the worm; in fact, it is a true *vermicide*. In one case, that of a woman in France, it brought away ten worms, of which one only manifested evidences of vitality, and that for a few minutes only.

Kousso appears to be an effective anthelmintic in both kinds of tape-worm; viz., the *tænia solium* and *bothriocephalus latus*. In most of the reported successful cases, the *tænia solium* was the parasite expelled; but in one of Chomel's cases, the worm which was evacuated was the *bothriocephalus latus*, and the author is informed, that kousso has proved most effectual in Switzerland, where, as is well known, the *bothriocephalus* is the prevailing tape-worm.

The dealers in kousso assert that one dose will, in every case, effect the radical cure of tape-worm. But this must be obviously an error. Even supposing that it invariably destroys all the worms in the alimentary canal at the time of its exhibition, it can in no way prevent their recurrence, provided the patient retains his predisposition (which there is no reason to suppose is affected by the kousso), and is subjected to the same influence. It certainly does not radically cure the Abyssinians; since, as several writers tell us, they resort to this remedy monthly. Schimper, the governor of Adoa, says it does not com-

pletely expel the tænia, or at least rarely does so. But he adds, that possibly in Europeans, in whom the verminous disposition is not so pronounced as in the Abyssinians, it may perhaps act in a more complete manner. In the Abyssinians this verminous disposition is innate, and is dependent, he adds, on the regimen which they adopt.

Hitherto the great drawback to the use of kousso has been the difficulty of procuring the remedy, and its enormous cost. At the time when it could be purchased in Paris, its price was 1*l.* 15*s.* per ounce, or 17*s.* 6*d.* per dose. M. Rochet d'Hericourt, the sole holder of the medicine at the present time, refuses to sell any quantity less than his entire stock, at the rate of one guinea per ounce. His nephew tells me that his uncle possesses 1400 lbs. of it, which, at one guinea per ounce, will cost 22,400 guineas. The impossibility of effecting a sale on such terms will, the author doubts not, ultimately compel the holder to reduce his demands to something approaching to reason. It does not appear that the remedy is very costly in Abyssinia. Schimper, in writing from Adoa, in Abyssinia, says that it is found in commerce at a very low price. At Yangaro (commonly called Zingaro) the sovereign has the exclusive use of it, his subjects being prohibited from employing it; but in other parts free trade in kousso is permitted. Considering the frequency and rapidity of our communications with Egypt (to which place, according to Dr. Brayer, kousso is conveyed by caravans), no difficulty, the author apprehends, will be experienced in obtaining an abundant supply of it. Its present price is a virtual prohibition of its use.

The flavour, though not very strong, is by no means agreeable; and is sufficiently powerful in some patients to create disgust and excite vomiting. In one case, under M. Chomel, the whole of the remedy was rejected by vomiting. No ill effects have resulted from its use in this country, nor has the author met with any statement of its injurious action, except in Mr. Johnston's 'Travels in Southern Abyssinia,' where it is stated that its "operation is speedy and effectual; and to judge by the prostration of strength it occasioned in my servants when they employed this medicine, it must be dreadfully severe. I can answer for this, that it occasions frequent miscarriages, often fatal to the mother, and even men have been known, after a large dose, to have died the same day from its consequences. I am, therefore, surprised at the noise this remedy has occasioned the last few years in Europe, as if it promised to be a valuable addition to our materia medica. This, I conceive, can never be; for no civilized stomach could bear the bulk of the drug necessary to produce its effects. Even in Abyssinia it is but barely tolerated; and let another remedy equally efficacious for dislodging tape-worm be introduced into that country, and the use of kousso will be soon abandoned. In fact, several other vegetable productions are now employed to escape the punishment of a dose of this violent cathartic."

Administration.—Both Bruce and Schimper tell us that the Abyssinians take a handful of the dried flowers as a dose. In Paris the dose has varied from four to six drachms. In general, however, half an ounce (troy weight) is considered a dose for an adult. For different ages the doses are thus adjusted:

Adults	1 dose	= 240 grs. (½ oz.)
Children from 7 to 12 years . .	⅔ of a dose	= 160 „
„ „ 3 to 7 „ . . .	½ „	= 120 „
„ not exceeding 3 „ . . .	⅓ „	= 80 „

The kousso should be taken in the morning fasting. The only preparation necessary is, that the last meal of the preceding evening should be slight. The evacuation of the bowels by a mild purgative or a lavement is also desirable. The mode of administering the remedy is as follows:—the powdered flowers are to be mixed with lukewarm water (for an adult about ten ounces), and allowed to infuse for a quarter of an hour. A little lemon-juice is then to be swallowed, and, the infusion being stirred up, the whole is taken, liquid and powder, at two or three draughts, at short intervals, being washed down by cold water and lemon juice. To promote the operation, tea (without sugar or milk) may be taken. In three or four hours, if the remedy has not operated, a dose of castor oil, or a saline purgative, should be administered.

Art. 47.—*Clinical Lecture on the Kousso.*

(*Lancet*, June 29, 1850.)

[Dr. Budd having obtained a supply of this medicine, tested its properties in several cases, upon which he subsequently made the following comments:]

The medicine has been given in the morning, before breakfast, which is the best time for administering all remedies for tape-worm, as the small intestine which the worm inhabits is then more empty than at other times; the worm, consequently, less likely to be sheathed, and protected from the action of the drug, by the other contents of the bowel.

The powder has been infused for ten minutes in three fourths of a pint of hot water. The infusion has then been stirred, and the whole drunk.

One of the patients, under the care of Dr. Todd, a woman advanced in pregnancy, vomited about half of the dose; but what remained in the stomach destroyed the worm. Two of the other patients had a slight feeling of nausea for ten minutes or a quarter of an hour, after taking the medicine. Another was several times purged by it; another, the woman to whom we first gave it, had headache after taking it, and ascribed to it a diuretic effect. The rest felt no uneasy sensation whatever from the medicine.

In the cases that fell under my own care, I ordered the patients to live sparingly, and to take a seidlitz powder, or a dose of castor-oil, the day before taking the kousso, for the sake of emptying the bowels, and so leaving the worm more exposed. This is a precaution which it is well to take before administering any of the remedies for tape-worm. They all act directly on the worm, and to take effect must, of course, be brought in contact with it.

I also ordered the patients to take a seidlitz powder, or a dose of castor-oil, after the kousso, to carry the medicine down to the worm, and to expel the dead or enfeebled worm from the bowels. This ex-

pedient, also, is equally applicable to other remedies for tape-worm, and especially to turpentine, which, if it remains long in the stomach, or passes slowly through the bowels, gets absorbed, and irritates the kidneys and bladder, producing strangury and bloody urine, and may not reach the worm in quantity sufficient to kill it.

Tape-worms are very tenacious of life. They are seldom voided entire without the aid of medicines that act especially upon them. Single joints often come away, and pieces two or three feet long are now and then voided, but it very seldom happens, unless after medicine, that a portion comprising the head is thus passed. This portion remains and grows again, so that a person is often plagued with the parasite for years. One of our patients, Sarah W——, had been so plagued for sixteen years, during which she told us that she had seldom gone a week without passing joints of the worm. She had taken turpentine, and the bark of the pomegranate root, and some years ago, when she was at Fort Beaufort, at the Cape of Good Hope, she took the root of a plant used by the natives as a remedy for tape-worm, which she says is called there "Cacay." She describes this root as being round, and when scraped, white, like a turnip, and sweet to the taste. This medicine had very little effect. The turpentine and the pomegranate brought away long pieces of the worm, but the head and the portion near it remained, and the worm grew again. The worm was expelled after the kousso in different portions, on the 11th and 12th of April, and she has since had none of the symptoms which she attributed to it. She is still (May 31st) in the hospital, for prolapsus of the uterus, which she had long had, but she feels convinced that the worm is entirely destroyed.

Another case, that shows more strikingly still the tenacity of life of the tape-worm, is that of Samuel P——. He first passed joints of the worm seven years ago. In September last, he was brought into the hospital with cholera, and on the day of his admission passed a portion of the worm two yards in length. He remained in the hospital three weeks, on account of the cholera. Some time after this, he again passed joints of the worm, and to get rid of it came to the hospital as an out-patient. Turpentine and castor oil were given him, and brought away a long piece of the worm. The ailments, which he attributed to the worm, were much relieved for a time. They then became more severe; joints of the worm were again passed, and in January last he came for the second time to the hospital to be ridded of the worm. Turpentine and castor oil were given him, as before; a long piece of the worm was again expelled, but the creature was not destroyed; so that here the worm had existed seven years, had kept its place during the terrible commotion and flooding of the intestines in cholera, and had escaped destruction by two doses of turpentine. Payne took the kousso on the 3d of May, and the next morning voided the worm, which was ten yards long.

In all cases in which the kousso has been given in the hospital, the head of the worm, or the taper portion near the head, has been found, so that there is reason to suppose that the creature has been entirely destroyed. The action of the medicine is very speedy. In one of the cases, in which the bowels were slow to move, the worm was expelled,

in different portions, in the two days succeeding that in which the kousso was taken; in all the other cases it was expelled the same day, and in several of them after the lapse of only three or four hours.

The result of our experience, then, is, that the kousso is a very effectual remedy for tape-worm; and that in its action it is both speedy and safe.

I have had little experience of the male fern. But the kousso is certainly much more efficacious than the pomegranate; and much more efficacious, as well as less disagreeable, and safer than turpentine. There is a considerable demand for it at the hospital, which, on account of the cost, we cannot satisfy. I trust, however, now that its efficacy is known in this country, which has commercial relations with every part of the world, that a fresh supply will soon be brought here, and that we shall have it at a reasonable rate.

From one of our patients two worms, one very large, and the other much smaller, were expelled by the kousso. It sometimes happens that as many as three or four of these worms are found together; but such an event is very uncommon. The tape-worm requires no mate, and generally leads a solitary life; and, hence, has been called by the French, *ver solitaire*—the solitary worm.

In the cases which fell under my own care at the hospital, notes were taken of the ailments which the patients attributed to the worm. Most of these persons had some unpleasant sensations referred to the stomach and bowels, such as a feeling of sickness or nausea, epecially on first getting up in the morning; pain, or a sense of sinking at the epigastrium; flatulence; a feeling at times as if the worm were moving in the bowel. It is worthy of remark, that in none of them was there diarrhœa. The appetite was very variable—in some, much impaired, in others, craving.

Two or three of the patients had a troublesome cough; and one, annoying palpitation; which were ascribed to the worm. Some of them complained, also, of unpleasant sensations in the head; giddiness or drowsiness felt during the day, and especially after meals; and almost all complained, more or less, of weakness, and lassitude, and incapacity for work.

The most constant of the symptoms were a feeling of lassitude, a sense of nausea on first getting up in the morning, and drowsiness felt during the day. But symptoms such as these are of very little use in diagnosis. Persons who have tape-worm generally discover the fact by the passing of joints. The worm seems to grow rapidly; and the tail-joints, as they attain their full development, drop off, and are voided with the other contents of the bowel. Probably no person suffers very long from tape-worm, without voiding some of these joints. The existence of the worm cannot be safely inferred, and the remedies for it cannot be given with a fair chance of success, unless joints have been passed. It is a common belief that while joints are dropping, the worm is feeble, and that the medicines which kill it act more surely soon after joints have been passed.

[Numerous cases have been recorded by Mr. Armstrong ('Lancet,') and others, which fully confirm the superiority of this medicine over those usually given in tape-worm.]

PART II.—SURGERY.

SECT. I.—SYMPTOMATOLOGY AND DIAGNOSIS OF SURGICAL DISEASES.

Art. 48.—*Illustrations of the Difficulties which beset the Diagnosis of some Cases of Disease.* By J. Poyser, Esq.

(From the *London Journal of Medicine*, Aug. 1850.)

To ascertain the true pathological cause of disease is, confessedly, the most difficult, as it is the important, part of medical practice. Indeed, as Celsus has well observed, "Æstimatio causæ sæpe morbum solvit." Many cases, however, occur in practice, but more especially in the country, to render the patient observation of disease difficult, if not almost impracticable. Extensive practice, while it renders the practitioner familiar with the phenomena of disease, and its termination, and best means of cure, have rarely much leisure for the niceties of physical and chemical exploration required in obscure cases. They who have the most extensive field of practice are apt, in the hurry of business, to depend on tact, a sort of intuitive gift, like the "tactus eruditus" of the surgeon; and hence their examination of the cases is apt to become habitually superficial, and a routine mode of prescribing is also, for the same cause, too often allowed to usurp the place of rational treatment.

Another hinderance to the complete investigation of disease, when it terminates unfavorably, in the country, is the great repugnance to post mortem examinations. In large towns, and public institutions, this repugnance is not so strong; but in some rural districts, a request to have a post mortem inquiry, almost invariably gives offence to the relatives, and is very rarely permitted. The country practitioner has, therefore, but seldom an opportunity of verifying his diagnosis by a post mortem examination; and if he had doubts on his mind as to the cause and seat of the disease during the life of his patient, those doubts have little chance of being cleared up by his death.

Case 1. *Obscure Neuralgic Pains; Disease of the Brain, and Enlargement of the Liver.*—Mrs. ——. æt. 40, the mother of a large family, and a lady of great intellectual attainments, who had usually been in the enjoyment of good health, was attacked in the autumn of 1844, with acute pain in the right groin, or, rather, in the inner and upper margin of the ilium. The pain was limited in extent, and might be covered, as she expressed it, with her finger, but was so acute as to deprive her almost entirely of sleep, and to render any motion of the part nearly insupportable. There was no swelling, redness, nor any appearance of inflammation. This pain continued some months, without varying its seat or character, and but little

controlled by treatment. It was considered to be neuralgic ; and every means that could be suggested, both constitutional and local, were tried by an eminent surgeon who then attended the case. During the progress of this affection, Mrs. —— discovered, while in bed (to which she had long been confined by the neuralgic pain), a swelling in the right side, below the liver. On examination, this viscus was found much enlarged, extending four or five inches below its normal size and situation, of a strong hardness, but unattended with pain or tenderness on pressure. It seemed to account for the pelvic pain, inasmuch as the pressure from this indurated mass on the nerves might occasion it. Mercury, with taraxacum, and iodine, and mercurial frictions, were, therefore, had recourse to, without any alleviation of the pain, or diminution of the hepatic disease.

In the spring of 1845, the patient was removed to her mother's house, in this neighbourhood, and on April 5th I saw her. In addition to the enlargement of the liver, and the acute pain on the inner margin of the crista ilii, there was now tympanitis, the bowels being enormously distended with flatus. There was no pain in the head, no fever, and the pulse and tongue were natural ; but there was a degree of irritability of mind, and fretfulness, which was remarkable, as Mrs. ——'s natural disposition was peculiarly placid and gentle. It is unnecessary to detail the treatment, as but little or no relief was obtained from it.

The tinctura cannabis indicæ soothed and tranquillised the nervous feelings, and the unguentum aconiti, as a local application (suggested by Sir B. Brodie, who was consulted), in some degree assuaged the pain, but the general character of the symptoms continued unabated till about the middle of April, when the pain began to diminish, and in two or three days went off altogether. After the removal of the pain, Mrs. ——'s spirits and appetite improved ; she was able to sit up, and walk about her room ; and although the tympanitic swelling and enlargement of the liver did not diminish, yet she was cheered by the freedom from pain, and the prospect of recovery.

On the 28th April, while sitting in her chair, Mrs. —— had an apoplectic seizure, which deprived her of speech, and the power of swallowing, from which she never rallied. She expired May 3d. A post mortem examination was made thirty-six hours after death. On removing the calvarium, the external part of the brain presented no diseased appearance ; but on cutting into the left hemisphere, it was found to be quite degenerated in structure. The whole of the anterior lobe was converted into a thick purulent fluid, and in the middle of this large abscess there was a clot of blood the size of a walnut. This coagulum appeared to be of recent formation. The left middle lobe was pulpy and diseased, but the other parts of the cerebrum and cerebellum had a firm consistence and healthy structure. The abdomen was very large, from the bowels being enormously distended with flatus, but there was no extravasated fluid or gas in the cavity. The left lobe of the liver presented a very diseased appearance. It was enlarged to more than twice its usual size, had almost a stony hardness, was mottled and tuberculated externally, and on cutting into it, its texture was gristly, and exhibited that diseased structure termed

mammary sarcoma. The inner edge of the ilium, when the pain had existed so many months, was carefully examined, but there was no morbid appearance discoverable in the part, or in the nerves leading to it. The thorax was not opened.

This case is interesting, and worthy of being recorded. It shows that the symptoms did not point to the true seat of disease till a short time before the patient's death; and that extensive disorganisation may be going on in the brain without impairing its functions, or manifesting those signs by which it may be detected. The fretful and altered manner of the patient led to the apprehension that softening of the brain might be going on; but the total absence of pain in the head, and of rigors, or any indication of inflammatory action, rendered the diagnosis very difficult. It is highly probable that the pain in the right side of the pelvis was occasioned by disease of the left side of the brain, and furnishes an additional instance to those recorded by Sir Henry Halford, where neuralgia was the effect of cerebral disorganisation. When the latter disease had so far advanced as to disqualify the nerves from suffering so exquisitely, then the pain ceased. This case shows the importance of attending to the brain, in all long continued and obscure and neuralgic pains, although the functions of that organ may not be impaired.

ART. 49.—*Case of Disarticulation of the Left Condyle of the Lower Jaw, &c.* By W. R. BEAUMONT, Professor of Surgery in the University of Toronto, Canada.

(*Dublin Medical Press*, May 18, 1850.)

This patient, a child, æt. 7, was admitted into the Toronto Hospital, September 17, 1849. The tumour, on his admission, extended upwards to the zygoma and malar bone, almost covering the temporo-maxillary articulation. It reached downwards to fully an inch below the angle of the jaw, extending inwards into the mouth as far as the mesial plane backwards, beyond the ramus of the jaw, and forwards to the posterior bicuspid. It pushed the tongue quite to the right of the mesial plane, concealed the velum, and almost completely filled the isthmus faucium. The molar teeth of the upper jaw were deeply imbedded in the tumour, which kept the mouth at all times open, with a constant dribbling of saliva, the upper and lower incisors not meeting by fully half an inch. The tumour had been first observed three months back

September 25, 1849: Professor Beaumont performed the operation for its removal, commencing by making a curved incision (the concavity upwards), extending from the lobule of the ear to the angle of the mouth, dissecting off the integuments from the tumour. The tumour was firmly wedged in under the malar bone. The outer wall of the jaw was cut vertically through with a small straight saw. The section was then, at one stroke, completed with a strong bone forceps. The condyle was disarticulated by being firmly grasped in a forceps, the joint being opened by dividing the external lateral ligament and capsule.

The patient did very well. A small stationary fistula was formed in the cheek, which eventually healed. On December 1, 1849, the patient was quite well. The right half of the lower jaw was drawn a very little towards the left side, about one eighth of an inch. The external cicatrix was a mere line.

ART. 50.—*Fungus Hæmatodes of the Testicle, combined with Hydrocele — Operation.* By Dr. KNOX, Surgeon to the Strangford Dispensary.

(*Dublin Medical Press.*)

J. G. states that he got a kick on the left testicle, about twelve months ago, after which it began to enlarge, and that he had undergone salivation and some other medical treatment, but without benefit. On examination, Dr. Knox found a considerable enlargement, which was extremely hard posteriorly, but softish and fluctuating on the anterior aspect. From this he decided that the disease was certainly a hydro-sarcocele, but of the precise nature of the morbid condition of the testicle there were no clear indications. The fluid was discharged by acupuncture, and found to be collected in several distinct sacs, both within the scrotum, and in the course of the spermatic cord, nearly as high as the groin. The enlargement of the testicle, although not increasing rapidly, was neither retarded by the use of mercury, iodine, suspensory bandages, aperients, nor by any other treatment which could be devised. No disease was to be detected in any of the internal viscera, and the spermatic cord was neither indurated, nor enlarged, nor was there the slightest affection of the lymphatic system apparent in either groin. An operation was therefore proposed, but not acceded to. After some weeks an abscess formed on the front of the testicle, and after the discharge of some healthy looking pus a fungus growth protruded, which escharotics of different kinds, chloride of zinc included, failed to repress. Hæmorrhage at intervals followed, but still the glandular system remained free from disease, although the health began to give way from the repeated loss of blood.

The patient, as well as his friends, now became most anxious for an operation to be performed, although the very questionable nature of the result was fully explained to them, and as it was quite evident that if unrelieved he must soon sink from the progress of the disease and the repeated hæmorrhage, Dr. Knox yielded to their request; feeling at the same time that a prolongation of life was all that could be expected. Taking advantage of a period when the patient's health seemed in the most favorable state for an operation, Dr. Knox accordingly proceeded to extirpate the testicle. Having first placed a ligature on the spermatic artery, he enclosed the diseased portion of the skin within two sweeps of the scalpel, which thoroughly divided the integuments. The next step in the operation was to divide the spermatic cord, and turn down the whole mass to the bottom of the scrotum, which was nearly a pound in weight, until it was clearly separated. Very little blood was lost during the operation, and only two ligatures were applied to the arteries. The edges of the wound were slightly drawn together, and cold-water-dressing applied, and

the patient removed to bed. As no consecutive hæmorrhage appeared in six hours, the wound was dressed with adhesive plaster, T bandage, &c. In ten days the ligatures came away, and within four weeks the parts were perfectly healed, and the patient able to walk about. His health gradually improved for several weeks, and not the slightest trace of swelling or hardness could be detected, although he was examined frequently. In two months after the operation, Dr. Knox felt a small hard tumour, at the lower part of the scrotum on the left side. This swelling rapidly increased, ulcerated, and poured out quantities of blood from time to time, the strength speedily gave way, the stomach became extremely irritable, and in a short time the patient sank.

Dr. Knox remarks that the only practical question, in such cases, after the true nature of the disease is ascertained, appears to be, whether the encephaloid testicle should be extirpated? or that the disease be allowed to pursue its course, to an almost inevitably fatal issue, unmolested?—medical treatment being utterly inefficacious. His own opinion is certainly in favour of the operation, for two reasons —the first is, that it holds out a hope, however slight, of permanent recovery; and in the second place, life may thus, at least, be prolonged in many cases. A fair record of cases, whether successful, unsuccessful, or partially beneficial, as in the above instance, might ultimately lead to the true rule of practice in this disease.

Art. 51.—*Retention of Urine from Diseases of the Prostate Gland.* By Dr. C. M. Hughes.

(*Dublin Medical Press*, June 19, 1850.)

In a chemical lecture, delivered by Dr. Hughes, the following remarks occur: "Chronic or senile enlargement of the prostate gland, of all the diseases of the prostate, is the most frequent cause of retention of urine. This disease is most peculiar to the down-hill of life, it is seldom met with till after fifty years of age, and few men reach their eightieth year without suffering more or less from disease of this gland. There is, however, a form of enlargement of the prostate gland which is occasionally met with in young men suffering from strictures of the urethra, which is a very different form of disease.

The prostate gland, consists of three lobes—two lateral and a middle one. The third, or middle lobe, often becomes considerably enlarged, and projects into the bladder, forming a sort of valvular obstruction at the neck of that viscus; at other times, the enlargement of the prostate is found to consist of the three lobes; occasionally the enlargement is confined to one or both of the lateral lobes.

The enlarged prostate cannot attain any great size without more or less compressing or distorting the urethra at the part where it passes through the gland; thus, when the disease is confined to one of the lateral lobes, the urethra is curved to the opposite side; if both should be enlarged, the prostatic portion of the urethra is deepened and flattened. In the enlargement of the third lobe, the urethra is both lengthened and increased in curvature. The elongation in some cases

amounts to an inch, an inch and a half, or even two inches. When the three lobes are enlarged together, a section of the prostatic portion of the urethra will represent the letter T. When the middle and one of the lateral lobes are enlarged and projecting into the bladder, they occasionally present an abraded surface. The left lobe, according to Sir Everard Home, is more frequently enlarged than the right one. The chronic enlargement of the prostate gland, although it has by some received the name of scirrhus, has no property in common with carcinoma, except its hardness. It does not contaminate the neighbouring glands, nor does a microscopic examination exhibit any of the characters of malignant disease. The chronic enlargement seldom terminates in ulceration or abscess, and the symptoms to which it gives rise are referable to the influence which the disease exercises over the functions of the neighbouring parts.

The symptoms of chronic enlargement of the prostate gland sometimes set in very insidiously indeed; the gland may even attain an enormous size without the patient's being conscious of it. However, sooner or later, the patient's attention is arrested, for he begins to experience a frequency and difficulty in making water, together with an uneasiness and sense of weight about the perineum and rectum. The uneasiness often extends along the urethra to the glans penis. As the disease advances, the urine is expelled every few minutes in small quantities, and so slowly as to drop between the legs. The urine now begins to deposit a copious sediment, which adheres to the bottom of the vessel. This sediment is at first rather transparent, but afterwards becomes opaque and muco-purulent; sometimes blood is mixed up with the mucus; the urine becomes quickly ammoniacal; the lining membrane of the bladder becomes inflamed; the muscular coat becomes greatly thickened, and its cavity contracted. If the enlargement of the prostate gland should be situated in the lateral lobes, you will at once detect the amount of enlargement by the finger introduced into the rectum. The prostate in its natural state is about the size of a chesnut, but it may, when diseased, become as large as an orange or small melon. When the middle lobe is the seat of the disease, it may be detected by the introduction of a catheter into the bladder. The inflammation at times is not confined to the bladder, but spreads up the ureters, and even to the kidneys themselves. The bladder, in some cases, becomes not only thickened but sacculated. Sometimes the enlarged prostate is accompanied by a stone in the bladder. Chronic inflammation of the mucous membrane of the bladder is one of the most frequent causes of death in neglected cases of enlargement of the prostate.

Persons labouring under senile enlargement of the prostate gland become very liable to attacks of retention of urine. There are two forms of retention of urine to which those patients are exposed—viz., *Partial* and *Complete*, the difference of which it is most important thoroughly to understand.

When the middle lobe of the prostate is enlarged, it projects into the bladder, often throwing the mucous membrane connecting it to the lateral lobes into transverse folds, the urine collects behind the swel-

ling, pressing it and the transverse folds towards the urethra, and thereby forming a valvular obstruction to the free passage of the urine. As the tumour enlarges, the quantity of water voided each time becomes smaller, and that which is retained is increased. Whilst the patient passes any water it is difficult to convince him that he does not empty his bladder; and the surgeon himself may be deceived in these cases. In all such cases the state of the bladder should be examined carefully, and will often be found to have risen into the abdomen over the pubes. Fatal mistakes have here been made, patients labouring under this form of retention having actually been treated for a supposed dropsical effusion. If a partial retention of urine is neglected, the symptoms become aggravated, till complete retention is established. Here, then, is observed the importance of dividing retention of urine from enlarged prostate into partial and complete.

When the retention of the urine becomes complete in the chronic enlargement of the prostate, the bladder rises up into the abdomen, where, if the patient is not very fat, we can detect a sense of fluctuation. After the retention has existed for some time, the urine may begin to dribble away involuntary, the bladder as it were overflowing. Here, by a proper examination, attention will be at once directed to the over-distended bladder. If a complete retention of urine from prostatic disease should be neglected or overlooked, the local sufferings, after a time, cease, a form of low fever sets in, the pulse becomes quick and small, tongue brown and dry, and the patient dies comatose. The bladder has seldom in these cases been known to give way, and the urethra cannot be ruptured, the obstruction being posterior to it.

The causes of chronic enlargement of the prostate gland have not as yet been satisfactorily accounted for. The disease has been ascribed to full living of every kind, excess in venery, neglect of the bowels, and by Sir E. Hume, to violent horse exercise, and the slow return of blood from the neck of the bladder, owing to the disadvantageous position of the vessels respecting the heart. It would appear, however, to me to be one of those natural changes which the human system undergoes after the meridian of life.

Treatment of Senile Enlargement of the Prostate Gland.—In the first or early stage of prostate enlargement, occasional leeches to the perineum, Dover's powder, opiate enemata, and the hip-bath, are often followed by relief. Sir E. Home strongly advocated the employment of cupping to the loins. In the more advanced stage, when there is evidence of chronic inflammation of the bladder, buchu and uva ursi prove beneficial. When the inflammation of the bladder is purely chronic, and unaccompanied by much irritation, the turpentines and balsams may be used with advantage. The mineral acids are indicated where the urine is alkaline. Dr. Hughes has seen very little, if any, benefit follow the use of injections of the bladder; and the same result has attended him in the use of the blue pill, cicuta, the different preparations of iodine and bromine, both by the mouth, and in the form of ointments and injections by the rectum. Opiates, in the shape of suppositories and enemas, are most useful in assuaging the sufferings of the patient in the advanced stages of the disease.

Treatment of complete Retention of Urine from Senile Enlargement of the Prostate.—Here medicine exerts but little, if any, beneficial influence, and success in relieving the distended bladder will depend on the proper selection of instruments, and capability of using them expertly. The instrument which Dr. Hughes prefers, in these cases, is a gum-elastic catheter possessing a large curve, and without a stilette. The instrument should be at least fourteen inches in length. In passing a catheter, in these cases, we should hold in recollection the nature of the obstacles we have to encounter. Here we shall not gain our object by violence, but we must endeavour to pass by the lateral lobes when they are enlarged, and to surmount the middle lobe when it is the seat of disease. In some cases we shall be able to pass a catheter furnished with a stilette more readily than one without it; for by partially withdrawing the wire, we can alter the curve of the instrument at pleasure, and so accommodate it to the altered course of the urethra. In other cases, we shall succeed in passing a silver catheter where we have failed with the other. When the third lobe is greatly enlarged, we shall facilitate the passage of the instrument by tilting its point over the central enlargement by means of the forefinger introduced into the rectum. Having introduced the catheter and drawn off the urine, should we leave the instrument in the bladder? In the generality of cases, Dr. Hughes conceives the proper practice is to do so, more especially if we have experienced much difficulty in getting it in, for we know that the urine is secreted with increased rapidity after an attack of retention, the bladder refilling in an amazingly short space of time; the bladder, likewise, in some cases, loses the power of emptying itself for some days after, from over-distension of the detrusor urinæ muscle. As to the period for which we should keep the catheter in the bladder, we must be guided by the feelings of the patient and our own judgment. If the instrument cannot be left in, the urine should be drawn off every ten or twelve hours, according to circumstances.

Suppose that we should fail to pass a catheter into the bladder in a case of retention of urine from prostatic enlargement—which seldom or never will be the case if we but understand the obstacles we have to encounter and the proper use of the catheter—how shall we proceed to relieve the distended bladder? Here puncture through the rectum is inadmissible from the altered relations of the parts, induced by the enlarged prostate, and the perineal incision would be useless. In such a case, therefore, we must select one of two operations; viz., we must either force a passage through the diseased gland, or puncture the bladder over the pubes. The best authorities are divided as to the choice of these operations; some strongly recommend the former. However, objections have been raised against forcing the instrument through the gland; viz., the likelihood of inducing obstinate hæmorrhage into the bladder, the possibility of forcing the instrument into the recto-vesical space, and the chance of the patient ever after being unable to pass water except through a catheter; however, experience proves that the last objection does not always hold good.

If alarming hæmorrhage should take place into the bladder, which occasionally has happened, even where the operator had no intention

of wounding the prostate, the medicine in which you should place confidence is gallic acid, which exerts a powerfully styptic influence over the urinary passages. It should be exhibited in doses of three grains, at short intervals, until all symptoms of bleeding should have ceased. When the bladder has already become distended with coagulated blood, we should endeavour to break up the coagula with a gum-elastic catheter, and then wash out the bladder with tepid water by means of a syringe adapted to the catheter, but the timely administration of gallic acid will, in most cases, prevent the necessity for further interference.

Art. 52.—*On Inversion of the Foot in Fracture of the Neck of the Thigh-bone.* By Edwin Morris, f.r.c.s., &c.

(*Medical Times*, Oct. 19, 1850.)

[Mr. Morris, in the following communication, points out the fact that *inversion* is more commonly met with than is supposed, as a symptom of fractured cervix femoris. He says:]

All surgical writers invariably give *eversion* of the foot as one of the symptoms indicative of fracture of the neck of the thigh-bone. Sir A. Cooper states, in his work on 'Dislocations, &c.,' "Directly that the bed-clothes are removed, two circumstances strongly arrest the attention of the surgeon; namely, the *diminished length* of the injured limb, and the *eversion of the foot* and knee." Further on he also adds, —"It is, however, proper to state, that an exception to this rule does now and then take place, and that the limb is found *inverted*, but it is of extremely rare occurrence." Believing that inversion of the foot is not so rare as has been supposed, and having met with three cases of fracture with *inversion* of the foot, within the last few years, one of them during the past week, induces me to draw the attention of surgeons to the important fact. The first case was that of an old woman, who was thrown violently out of a cart upon her right hip, after which she was unable to stand upon, or walk with the injured limb. A medical gentleman saw her about an hour after the accident, and, upon examining the leg, found it shorter, together with *inversion* of the foot. Considering the case one of dislocation on the dorsum ilii, she was removed a distance of two miles to the union infirmary. I saw the woman immediately after her admission, when, much to our surprise, we observed the foot *everted*, with shortening of the leg. There was one symptom absent, and which I could not produce, viz., *crepitus*. I considered the case one of fracture of the neck of the thigh-bone, and treated it accordingly. After about four months she left the infirmary, able to walk with a stick. The above case bears out the statement made by Sir A. Cooper, that "some hours must elapse before this *eversion* assumes its most decisive character, as the muscles require some time to become permanently contracted, and this is the reason that the accident has been mistaken for dislocation on the dorsum ilii." In the case just given, about three hours elapsed before eversion of the foot showed itself.—The next case was that of a fine healthy athletic man, æt. 40, an iron-founder, who had been

thrown down whilst wrestling with one of his fellow workmen. More than a week elapsed before he was brought to the infirmary. Believing that he had merely sprained himself, he lay in bed, and applied an embrocation procured from the druggist. Upon examining the limb after his admission, there was shortening, with *inversion* of the foot. By extending the leg, and rotating it, a distinct crepitus could be felt. After extending both limbs, I bound them together by passing a roller round both feet, and thus made the sound leg a means of support and extension for the other. After ten weeks the man was able to walk with crutches, and shortly afterwards threw them aside altogether; the cure was complete.—The third and last case was that of a delicate girl, æt. 10, who, whilst playing with a child on Sunday evening, the 1st of September, slipped down upon the floor with her legs widely extended. She heard something crack, and was unable to move. She was carried to bed, and the hip rubbed with embrocation. The parents of the child, thinking that she had only "bruised herself," did not call in surgical aid until Wednesday night, the 4th, when I was requested to see her. There was shortening of the leg, considerable swelling about the hip, with *inversion* of the foot, the great toe resting upon the dorsum of the foot of the sound limb. At first sight I thought there was dislocation on the dorsum ilii; but, upon taking hold of the leg, flexion and extension of the thigh were readily accomplished, and upon rotating the limb crepitation was produced.

ART. 53.—*On Tubercular Disease of the Tongue.* By Dr. FLEMING.

(*Dublin Quarterly Journal*, Aug. 1850.)

Dr. Fleming observes that this is by no means a common form of disease, and that he considers it to be of lupoid character. The appearance, as detailed in a case, is that the diseased portion is hypertrophied, so as to project; it is traversed by a fissure (in the case narrated), with irregular ulcerated edges, and a foul whitish surface. On compressing the tongue, small, solid, and fixed tumours are to be felt imbedded in it. This disease is insidious in its onset, and its progress is protracted. Children and adults are commonly the subjects of it. The disease is not malignant, but the cure is slow. When healed, the appearance of the tongue is characteristic, smooth cicatrices without papillæ occupy the seat of the ulcer, dividing the surface into deep furrows.

This affection may be confounded with syphilitic or cancerous disease, and hence the surgeon should be on his guard. Its diagnosis from the former may be occasionally attended with some difficulty, especially in its more advanced or ulcerating stage; but, even admitting that the syphilitic affection should be a solitary symptom, which is rare, Dr. Fleming thinks that attention to the rules laid down by writers must enable the surgeon to come to a proper decision. His mistake, if he err, will, however, be remedied by subsequent results, and the agents used are comparatively innocent, and are likely to be beneficial, in most instances, to both diseases. Not so as regards cancer; here his diagnosis is all important, and requires the greatest

circumspection. Respecting it, however, there can be no difficulty if the main outlines of the affection are borne in mind, especially its almost painless character and slow progress, and the trifling inroad it makes on the surrounding textures, or on the constitution, even after a very prolonged duration.

The treatment which the author has found most successful is the combination of iodide of iron with hemlock. In obstinate forms of the disease, some of the milder preparations of mercury may be requisite, but in all the means employed must be continued for a lengthened period. The author has tried many local applications, and among others the acid nitrate of mercury, but he has found none equal to the nitrate of copper. It is most invaluable as an application to this class of ulcer; and it will be found equally so in many of those small excavated ulcers of a semi-phagedenic character, which occur on the genital organs both of the male and female. It is a very deliquescent salt, and can be applied only in the liquid state. The surface of the ulcer should be well dried before it is applied, and afterwards covered with oil; and it should be borne in mind, as regards the tongue, that the superficial appearance of the ulcerated surface is often most deceptive, as the disease burrows very deeply. The best mode of fixing the tongue, for the purpose of applying the caustic, is by means of the fingers and thumb, with the aid of a towel, and the best way of applying the caustic is with a small piece of cedar, the ends of which are covered with lint, one being dipped in caustic the other in oil.

Art. 54.—*On a Peculiar Accident of the Shoulder-Joint.* By Dr. Jacob.

(*Dublin Medical Press*, May 29, 1850.)

[In the 'Medical Gazette,' April 1830, Mr. Adams narrates a case which he regarded as a dislocation of the scapula, in consequence of its lower edge escaping from the latissimus dorsi. The chief symptom is a peculiar tilting up of the inferior angle of the scapula, causing it to project from the ribs. The case alluded to is as follows:]

Thomas Brenan, æt. 55, by occupation a wine-cooper, was admitted into the hospital March 8th. He stated that six weeks ago he experienced a sense of numbness and pain in the right arm, from the shoulder to the fingers, and attended with partial loss of motion; but this he attributes to the circumstance of his having laid on his arm during the night. He applied linimentum saponis, and the use of the arm almost recovered. Ten days after he felt the numbness again. Whilst engaged in heavy work, he let a hammer fall out of his hand; and, in suddenly stooping to avoid a blow, *he felt something give way at the shoulder:* but this did not prevent him from finishing his work that day. The next morning, however, he found that he could not use the arm at all, and felt slight pain on the internal surface of the scapula. He applied some domestic remedies for a fortnight, when finding that he became worse, he determined on coming to the hospital, and was treated as an out-patient, the arm being strapped up with soap

plaster; but, still making no progress towards recovering any further use of his arm, he was admitted as an in-patient under Mr. Adams, who immediately recognised the case as one of displacement of the inferior angle of the scapula over the edge of the latissimus dorsi. The condition of the patient was as follows:—The arm was fixed and rigid; the inferior angle of the scapula formed a remarkable projection, and was almost immoveable; the lower edge of the tapezius was remarkably tense, and the bundles of fibres of the muscle very evident. The anterior part of the latissimus dorsi could be indistinctly traced beneath the scapula, and was tense at the posterior part of the axilla. On attempting to raise the arm, the scapula moved also, but not freely, and the whole movements of the shoulder-joints were cramped and rigid. The reduction was easily accomplished, and the man could move his arm with freedom.

[In the same journal, April 20th, another case is recorded by Mr. Rose, of Swaffham.]

Thomas Envy, æt. 40, tall and spare, an agricultural labourer, in March, 1848, complained of pains over the upper part of the right scapula, extending up to the shoulder and back of his neck, without heat or swelling of the part: his bodily health was good. At the time of his first feeling the pains, he was employed in trimming and laying down a hedge, and banking. He was not aware of having sprained any part connected with scapula or shoulder. About midsummer of the same year he consulted me respecting his case, in consequence of finding that he could not use his arm with its former power, more particularly when he had occasion to employ the hand above his head. Upon examining him, I found that when he raised his hand above the level of his shoulder, the lower angle of his right scapula left its natural position in relation to the ribs, and projected fully, if not more than, an angle of forty-five degrees with the trunk; and also, when his arms hung unrestrained by his side, the right scapula projected more than the left throughout its entire base. In whichever way he employed the limb, whether above head or what is termed underhand, he felt the loss of power in it so much as to induce him to use the left (although a right-handed man) rather than his right hand, for all purposes of his labour. In searching for information upon the pathological state and treatment of the case, I met with a nearly similar one in the eleventh volume of the "Provincial Medical and Surgical Transactions," contributed by Mr. Banner, of Liverpool,—a case which appears to have been overlooked by Mr. Callaway, when writing his Jacksonian prize essay. Mr. Banner considered the displacement of the scapula to be dependent on paralysis of the serratus magnus muscle. I therefore determined on trying the effect of galvanism. My patient submitted to its application once; but not liking the sensations excited, I could not prevail upon him to have a repetition of the electro-magnetic shocks, and I lost sight of him for some months. He then called on me again; and finding that the displacement and inconvenience resulting, were pretty much *in statu quo*, I fitted to him a well-padded back-plate, which was kept steadily pressing against the scapula by shoulder-straps, and other straps crossing over the sternum, so as to keep the scapula in position,

yet to allow of the action of the serratus magnus and other weakened muscles, whenever they recovered their ability to act. He continued his labour. He wore the apparatus about six months; but finding that it restricted uncomfortably the movements of the chest in respiration, he then laid it aside; still it appears that he had worn it long enough to be greatly benefited by its application; and now, after having worked through the summer and harvest of the present year without it, I find that the scapula has recovered its normal position, and retains it during all the evolutions of the arm; and, therefore, that the patient is no longer unfitted for his occupation.

Upon these cases Dr. Jacob observes that the writers seemed to lean to the notion that this remarkable displacement was nothing more or less than a dislocation of the inferior angle of the scapula from beneath the latissimus dorsi—a notion which he regarded as erroneous, because no such use could be assigned to the soft structure of such a muscle as the latissimus dorsi, as that of keeping the scapula *in situ*. Were this the case, very slight efforts would be sufficient to produce dislocation of this bone, and it could hardly be supposed that any muscle would be capable of withstanding the stretching and pressure made upon it under such circumstances, or that the pain caused by such an impression would be tolerable.

Many years ago a case came under his observation, on a careful examination of which the real nature of this accident struck him with much force. A man who was carrying a heavy board upon his shoulder suddenly slipped and fell down. He complained of his shoulder, but the lower extremity of the scapula was elevated from the ribs, drawn towards the spine, and depressed. The moment, however, he pressed the scapula up into its proper situation, the coracoid process, previously lowered, went into its usual place; and he had therefore no doubt at the time, nor since, that the coraco-clavicular ligament had given way, and that the scapula, and along with it the arm, went down under the weight of the limb. His object in bringing this subject forward was to ascertain whether any similar cases had occurred in Dublin, and whether those surgeons who had met with them had taken the same view as himself when they first saw them.

[We have met with three instances of this peculiar displacement of the scapula, two double, one single. The first was a girl æt. 14, or thereabouts, who was exhibited at a branch meeting of the Provincial Association at Ipswich, some few years ago. In her, both scapulæ were tilted upwards in an extraordinary degree, so that the inferior angles were nearly on a level with the acromion process. The second was a case of a female, æt. 50, with complete paralysis of both arms, but not of the lower extremities. In her case the scapulæ were both projected as in the first. A third case is now under our care. The girl is a sempstress, æt. 15; the left scapula only is affected. It can be replaced with ease, but resumes its abnormal position instantly. Dr. Jacob is referred to volume II, p. 210, of this Journal, in which notice is taken of similar cases by M. Nelaton, who considers them to be caused by a paralysis of the long thoracic nerve.—Ed. H.-Y. A.]

SECT. II.—ON THE NATURE AND CAUSES OF SURGICAL DISEASES.

ART. 55.—*Case of Necrosis of the Inferior Maxillary Bone as an Effect of Mercurial Salivation.* By J. WILLIAMS, Esq., F.R.C.S., Southwold.

(*Provincial Medical Journal*, July 24, 1850.)

William Misselbrooke, æt. 53, of Walberswick, of rheumatic temperament, by occupation a sailor; has enjoyed good health, with the exception of occasional attacks of fever, with pain in the larger joints from exposure to cold and hardships in his calling; he placed himself under my care September 24th, 1849, suffering from one of his ordinary attacks. Gray powder and compound ipecacuanha powder, of each two and a half grains, were ordered three times daily, and a mixture of acetate of ammonia, carbonate of magnesia, infusion of rhubarb, tincture of colchicum and opium, and camphor mixture, every six hours. The rheumatic pain and fever quickly subsided, and after twelve of the above pills had been taken, they were discontinued, on account of severe mercurial ptyalism suddenly supervening, accompanied with particular pain and swelling in the right half of the lower maxillary bone, which increased to such an extent as to be almost unbearable: the sympathetic fever, with delirium, was extreme, and the constitutional disturbance of a very alarming character. Leeches were frequently applied over the painful surface, saline mixture with opiates, administered internally, and the bowels well relieved by occasional aperients, but the swelling continued gradually to increase, severe rigors took place, and fluctuation soon became evident. A free incision gave exit to about half an ounce of fætid pus, and a probe being introduced came in contact with bone denuded of its periosteum. The nature of the case before suspected was now evident; various collections of purulent matter took place in the neck, and were opened as early as detected. The pain and constitutional disturbance were so great, that at times it was not expected he could survive, until the process of separation took place. The strength was supported by bark, meat, and porter, and the pain somewhat relieved by opiates; a linseed-meal and bread poultice was continually applied to the affected part, and on the 3d of April, 1850, the necrosed portion of bone cut was found loose, and without much difficulty was removed from within the mouth. It was found to be a considerable portion of the right ramus of the inferior maxillary bone. The hæmorrhage was trifling, and almost instantaneous relief was afforded the poor man. No more formation of matter took place; the wounds quickly healed, and the patient soon regained health and strength, with the power of mastication; the only difference perceptible was a little more enlargement on the right side than on the left. About a week after the first portion of bone separated, a small piece came away about the size and shape of the thumb-nail, which was by accident mislaid. In the case just related, Mr. Williams remarks, "I think there can be no doubt that the cause of the necrosis was severe mercurial ptyalism, induced by the

gray powder, of which half a drachm was taken in four days, as neither uneasiness, pain, nor swelling, were felt before the action of the mercury became evident. The teeth were generally decayed, particularly those on the affected side, and during the progress of disease became quite loose, and were removed without difficulty with the fingers. I have seen many cases of mercurial salivation far more severe than the one related above, but never with such untoward results; it reminded me more of the effects produced by the vapour of phosphorus, so destructive in its influence, particularly where the teeth were decayed, several cases of which have, within the last few months, been published in some of the medical journals. It was likewise interesting to observe the immediate cessation of all constitutional disturbance as soon as the necrosed portion of bone was removed, and the very rapid recovery which followed after more than six months' constant pain and suffering. I am inclined to think that atmospheric causes have more to do with the uncertain action of mercury on particular individuals than constitutional idiosyncrasy, as we often find a remarkable susceptibility in persons to the action of the mineral at certain times of the year, and under particular states of the atmosphere, who at other times can take it with impunity."

ART. 56.—*Peritonitis from Injury—Recovery.* Under Mr. STANLEY.

(*Lancet*, Oct. 5, 1850.)

[The following case is reported to exhibit the beneficial agency of opium in acute peritonitis.]

The patient is a stout, healthy-looking little boy, æt. $5\frac{1}{2}$ years, who was brought to the hospital on the 10th of July, under the care of Mr. Stanley. The poor little fellow had, a few moments before his admission, been knocked down by a cart, the wheel of which was distinctly seen by several persons to have passed over the abdomen across the umbilicus. Immediately after the accident, the boy is said to have got upon his feet, and to have run some paces; but he soon bent the body forward and lay down.

When he was brought to the hospital he kept tossing from side to side, and seemed to suffer excruciating pain in the abdomen. The respirations were forty in a minute, suppressed, and very short; the pulse about 140, and small; but he was so restless that the arterial pulsations could hardly be counted. The child had not vomited, nor passed any blood per anum; he stated that he had emptied his bladder about half an hour before the accident, and had just had his dinner. This latter statement can hardly be correct, as it is not very likely, as the dresser justly observed, that a child in that walk of life would dine at six.

However this may be, the little patient was at once given seven minims and a half of tincture of opium, and warm stupes were carefully applied to the abdomen. These means having given no relief, in about an hour the same dose of laudanum was repeated; the general symptoms remained the same; there was no vomiting, and the child was quite conscious. The patient remained in the same state during

the next hour, rolling about in great agony. Neither the chest nor the abdomen appeared to move much during respiration, which was short, frequent, and *catching*; the face was pale, but the extremities warm. As he was now inclined to doze, no more opium was given, though the child did *not* fall asleep, and went on tossing about, moaning and crying with pain in the abdomen. The same dose of laudanum was therefore repeated, and two ounces of wine given besides. In the night he was very restless; about an hour after the last dose of opium the child went to sleep, but woke several times, and complained bitterly of pain in his belly.

The bowels were not open towards the morning, nor was there any urine passed; a little retching took place, and the patient expectorated a small quantity of dark-coloured blood. During the day some sleep was obtained; the pupils were, however, contracted, the respiration irregular, though more natural and nasal. The pulse improved somewhat in volume (130, intermittent), and the patient expressed himself as feeling better. On the third day, no urine had been passed since admission; an elastic catheter was therefore introduced into the bladder, and about eight ounces of clear and apparently healthy urine drawn off. The catheter was secured in the urethra, and about one ounce of turbid urine gradually drained away, loaded with an abundance of white flocculi.

When the patient awoke, about noon of the third day, he complained of great pain in the abdomen, and the respiration again became short and hurried; the child was given seven minims and a half of tincture of opium and two ounces of port wine; the urine, on examination, was found loaded with an abundance of lithates. Some milk and arrowroot were now taken, with but little appetite, and the dose of laudanum, together with the wine, was repeated, but the child went on complaining of as much pain in the abdomen as before. On the fourth day he was somewhat quieter, and dozed a little; the pain and restlessness, however, soon returned, and the former was constantly referred to the abdomen.—Tincture of opium seven minims and a half, and two ounces of wine. Towards the evening of this day the ingestion of the opium was followed by marked relief: in fact, the child generally fell asleep about half an hour after taking each dose, and on awaking expressed himself relieved, although the pain never *ceased*, and after remaining awake a short time, it became so urgent that he was even afraid to cough. He had, however, a little sleep for about two hours, after which time he was very restless and in pain.

The bowels had not been moved since admission; there was no vomiting, and the urine dribbled through the catheter. The same dose of opium and wine was repeated, and the patient now expressed great anxiety to have his medicine administered. On the fourth day there was not much alteration, except a fit of coughing, which occasioned a great increase of pain; the opium was repeated. The pulse was now 120, regular, soft, and slightly improved in volume; the tongue somewhat furred and dry; the bowels still confined, and the urine passing through the catheter. No pain in the chest. In the afternoon the child fell into a deep sleep, which lasted three hours; on awaking he expressed himself as feeling better, though coughing

still caused much pain in the umbilical region. The pulse improved in volume, and was soft and compressible, the pupils not being so contracted as heretofore.—Opium and wine repeated.

On the fifth day the patient seemed free from pain, and the countenance was somewhat more natural and less expressive of uneasiness; the fits of pain, however, soon returned; the face became again extremely anxious; the pulse harder, and the respiration hurried. The opium and wine were repeated three times in the day without subduing the pain, which was still much complained of. Bowels still confined. Thus the patient went on for the next three days, improving a little at times, but ever being subject to severe attacks of abdominal pain; the bowels remained inactive until the tenth day after admission, when, after a good night, he awoke considerably better, did not take his usual dose of opium, and had a copious alvine evacuation. The pulse fell to 74, was soft and compressible, and the abdomen began to bear moderate pressure. The next few days were marked by gradual improvement, the child seldom required medicine, and did not experience any pain but when he committed some dietetic indiscretion; and about twenty days after admission the little patient left the hospital, to all appearance perfectly well, and has since remained so.

This case beautifully illustrates the rule of practice which states that the great point in the treatment is to support the system under the intense irritation excited by the visceral inflammation, and that no substance is so well calculated to effect this as opium. We are likewise advised, in contusion of the abdomen, to avoid purgatives and enemata; this precept was here applied with the utmost strictness, as no alvine evacuations took place for nine days. Many would have been tempted to add a little calomel to the opium; but when we recollect the intense inflammation which must have existed to give rise to such continued pain, we are driven to admit that the least excitement in the shape of peristaltic motion might have raised the inflammation to a fatal degree.

It would appear from this case, that it was a favorable circumstance that the wheel, instead of passing across the hypochondrium, pressed upon the umbilical region, for the liver and spleen offering, in the first place, greater resistance than the convolutions of intestines, are more likely to be lacerated, which circumstance is almost always followed by the death of the subject. It is interesting to observe what large quantities of opium are borne under a high state of irritation of the system; the patient, a boy æt. $5\frac{1}{2}$ years, took about twenty-two minims of laudanum per diem, for about ten days, without any unpleasant symptoms, and even without an unusual amount of sleep. In witnessing such a case as the preceding, the question naturally arises whether the inflammation of the peritoneum has left any traces in the abdominal cavity, and whether the probable fibrinous exudations will eventually be absorbed, or interfere with the regular action of the bowels. The answer probably lies between the two extremes.

Art. 57.—*Ilium Ruptured by Violence.—Peritonitis.*

(*Prov. Med. and Surg. Journal.*)

[Mr. Pemberton has communicated the following case to the Birmingham Pathological Society:]

Joshua Woodhouse, æt. 75, a gun-stock maker, presented himself at the hospital on the evening of May 29th, 1849. He appeared greatly prostrated in condition, and was suffering acute pain, but could give little account of himself. On examination I found him to have an inguinal rupture upon the left side, which I reduced with some degree of difficulty, the application of the taxis giving him considerable pain. I learned upon inquiry, that upon the 28th he had become entangled in the machinery of a large grindstone, and had been carried along the revolving wheel, his abdomen at its lower part receiving a severe blow. He wandered about after the accident holding his hands across his belly, and complained severely of pain. He did not go to work on the next day, but in the evening came to the hospital. There was no abdominal tenderness on pressure; and no external evidence of injury.

May 30.—Respiration laboured; general appearance more depressed than on the previous evening; at two P.M. he died.

Sectio cadaveris, twenty-four hours after death. Thorax: The contents were natural. *Abdomen:* The parietal and reflexed peritoneum was covered everywhere with flakes of lymph; large collections of pus existed in the iliac fossæ and dependent portions of the cavity; the intestines on their convex surfaces were covered with lymph, and adhered by bands of the same material. Globules of castor-oil were visible, floating on the purulent fluid. On removing the intestines, the portion that had escaped from the cavity into the inguinal canal, was found to be a portion of ilium near its termination in the cæcum. It presented no morbid change beyond some slight adhesions upon the inner surface. On tracing the ilium further upwards, a rupture in its coats was found to exist, near its commencement in the jejunum. This rupture was situated about half an inch from the mesentery, and was about half an inch in its longest diameter, which was placed in the short axis of the intestine. Looking at the edges of the opening from the inner surface, they are seen to be smooth and perfectly even, whilst on the outer aspect they are broken and uneven. No inflammation is observable as existing especially in the vicinity of the opening. The remainder of the intestines natural.

Art. 58.—*Dislocation of the Scaphoid Bone of the Foot.*
By Dr. Walker, Peterborough.

(*Prov. Med. and Surg. Journal*, Oct. 16, 1850.)

On the 10th of June, 1850, a stone-mason, æt. 40, and of a spare but sinewy form, in stepping from the top of a wall eighteen feet high, to another about a foot lower, over an intervening space of about two feet, advanced his right foot, but stepped short, his toes only resting

upon the wall, his whole weight being, in the act of stepping, thrown upon the right leg. The foot, as he says, "bent upwards, and something gave way." Falling down between the two walls, he found himself on the ground on his hands and knees, not hurt, as he conceived, by the fall, but quite unable to work, and his foot in great pain. He was carried home, and Mr. Walker saw him next day. He was in bed, and on examination, his opinion of the case entirely coincided with that of Mr. Hanbury, our excellent house-surgeon, who had previously visited him. We found a bold projection on the dorsum pedis, in the situation of the os naviculare, and a corresponding depression beneath, where, in the normal condition, the tuberosity of this bone forms a distinct projection. Over the displaced bone the skin was tense and red, and over this point there was a deal of pain on pressure. He could bend and extend the ankle joint without difficulty or much increase of pain. Mr. Walker at first tried to reduce the bone by firm pressure with the thumbs, but it felt firmly fixed in its abnormal position, and he could not move it.

He then requested Mr. Hanbury to press the foot downwards, whilst he attempted to return the bone to its position between the astragalus and cuneiform bones, and with an audible snap it returned and the deformity disappeared.

Mr. Walker then merely directed the foot to be kept quiet and fomented; but two days after, finding that the bone felt loose and easily moveable, with a tendency to slip upwards, occasioning the peculiar appearance of a slight dimple or hollow in place of its natural projection, a plaster and roller were applied.

He was confined to the house for three weeks. He then returned to his work, but continued slightly lame for a month after. This morning (September 16th), on examination, no remaining appearance of injury is found; he has no pain, and the motions of the foot are perfect.

Art. 59.—*On Fungous Tumour of the Rectum in Children, attended with Bloody Discharges.* By M. Lecluyse.

(*Revue Médico-Chirurgicale,* and *Medico-Chirurgical Review,* Oct. 1850.)

M. Martin has already directed attention to the affection as it occurs in the adult, producing discharges which are mistaken for those from hæmorrhoids. The first case occurred in a child æt. 5, about whom the author was consulted in consequence of hæmorrhages which occurred during a prolapsus ani, and which arose from an excrescence that he at first mistook for hæmorrhoids. Examining it more closely, he found it was a spongy vegetation, not unlike a portion of the placenta, which protruded from beyond the sphincter when the child went to stool, and was quite insensible to the touch. As the hæmorrhage had been considerable, the fungus was touched with the nitrate of silver, whenever it protruded; and owing to its softness, four or five applications, at intervals of several hours, sufficed for its destruction. In a second case, a girl æt. 8, had become much reduced by the quantity of blood she had lost during several weeks; and a fungous tumour, about the size of an almond, was easily removed in the same

way. A third case occurred in an infant six months old, in whom efforts at stool protruded a tumour the size of a pea, which bled. The author believing it to be the germ of the fungous tumour, also treated it with caustic.

M. Lecluyse believes that this affection is often mistaken for hæmorrhoids; and especially when the bleedings are said to be due to internal piles. The caustic could not be applied very high up, but as the bleeding has only occurred on the protrusion of the tumour, this has been easily reached, the application being successful even when the base of the tumour could not be attained.

Art. 60.—*On Hospital Gangrene.* By Professor Restelle.

(*British and Foreign Medico-Chirurgical Review*, Oct. 1850.)

In the autumn and winter of 1849-50, 400 cases of hospital gangrene came under the author's care. Owing to the crowded state of the hospital, no classification of patients could be adopted; but this enabled the author to observe that patients labouring under contagious diseases, as syphilis, were more easily attacked by the gangrene. No general symptoms preceded the altered character of the wound; in some cases there were daily paroxysms of severe, long, and various nervous symptoms of a convulsive character.

In order to prove the contagious nature of the disease, the author inoculated various wounds with the matter. Other proofs were found in its communication from bed to bed, and on its having been propagated in the town by means of a dirty knife used in an operation. The author, indeed, regards the propagation of the disease as entirely effected by contact, although he allows that the bad state of the air of a crowded hospital increases the virulence of the disease. He does not believe, however, that any contagious principle capable of propagating the disease is absorbed into the system; and thus, when in consequence of the ravages of the disease, operations or amputations were required, the new surface did not take on gangrenous action, providing care were taken to prevent gangrenous matter obtaining access to it. Taking this view of the disease, it is to local treatment he looks for a curative agent, and this may be had recourse to at any stage, if the part retains sufficient reactive power. After trying experiments with numerous caustic substances, as the strong acids, &c., he has come to the conclusion, that the best application is a *solution of caustic potass*, which he considers to act not as a mere caustic, but also by neutralizing the virulence of the poison itself. On the first day, however, he applies pieces of caustic potass in substance to the wound, endeavouring to penetrate into all its sinuosities. Next day the wound is dressed with a solution of ℈j ad ℥j of water, and every day the strength of the solution is diminished by four or five grains, to the fifth day, when the wound is simply dressed. The author declares that even the worst cases went on well after this plan was put into practice. In the subsequent treatment of the wounds, absorbent powders, as charcoal, and especially carbonate of magnesia, were of very great service.

Art. 61.—*On the Nature of Dry Gangrene.* By Dr. Martini.

(*Omedei Annali*, and *Brit. and For. Med.-Chirurg. Rev.*, Oct. 1850.)

Dr. De Martini observes, that the seat and cause of progress of spontaneous dry gangrene have not been sought for by pathological anatomists in the primary elements composing the structure of the affected parts, but in some distant points from the centre of the alterations. He is of opinion, however, that all the tissues of a part suffering from it are the seats of a *minute capillary injection, and a total and primary coagulation of the blood.* The most delicate capillaries are injected, they become obstructed with fibrinous coagula, and a portion of the colouring matter is effused around the anastomotic points. The papillary body loses its moistness and rose-white colour, and becomes a collection of black and hard asperities, rising from a dermis that looks as if it were carbonised. Observed through a microscope, these minute vessels seem as if injected by a substance which has hardened within them; and, in fact, so obstructed are they, that when divided, they do not empty themselves any more than as if they were filled with so much wax. In the adipose layer, muscles, and indeed all parts that the gangrene implicates, the same minute capillary injection and coagulation is observable.

In reference to the causes of this complete coagulation in the capillary circulation, the author expresses his opinion, that insufficient attention has been paid to *primary lesion of the capillary innervation.* The acute, burning pain preceding the development of the gangrene, the greater disposition of a paralysed extremity to become attacked, the commencement of the process by a complete arrest and coagulation of the blood in the capillaries (the circulation in which is under the influence of the ramusculi of the sympathetic), and the nervous disorders which frequently precede or accompany the development of the affection, lead to the belief that a primary paralysis of the capillary innervation may frequently play an important part in the induction of this gangrene.

In a *chemical* point of view, the metamorphoses which accompany dry gangrene are quite special. In gangrene, the consequence of inflammation, there is rupture of capillaries and effusion of blood, and thence a more intimate combination of its oxygen with the elements of the tissues. The effused blood coagulates, the globules and darkened hematose dissolve, and the whole organic materials of the fluid pass into a state of decomposition, which is communicated to the surrounding tissues. In dry gangrene, coagulation takes place without prior inflammation, and at the various anastomotic points, effusions forming also coagula are likewise observed. No solution of the blood, no decomposition or disruption of tissues, takes place. The structure of these undergoes little or no alteration. The physical characteristic of *inflammatory gangrene*, is the changing of the organic solids into a soft, pultaceous, decomposing mass; while that of *dry gangrene* is the changing of the humours and soft parts into dry solids. The smell of rancid bacon, which the part emits in dry gangrene, and the readiness

with which *mycodermes* are developed on the surface, would seem to show that the process is one of slow combustion—*eremacausis*, a process at first excited by the oxygen of the blood, and when that ceases to be obtainable, by that of the air. A foot suffering from dry gangrene, which has been amputated, was introduced under a bell containing air, together with some pieces of caustic potassa. In three days the whole of the oxygen had become consumed, and the potass converted into carbonate. The process of *eremacausis* could not be set up in organic matter without prior enfeeblement of the vital affinities of its elements, which are dependent upon the peripheric innervation.

From what has been said, it is evident that the organic changes produced in dry gangrene are incurable, for the coagulated blood cannot resume its organic liquid state, nor can the chemical metamorphosis, effected by means of oxygen, be arrested. But this chemical process does not limit its operations to the gangrened part, since the facility of absorbing oxygen possessed by a part in a state of *eremacausis* is communicated to all matters in contract with it, so that the entire body become involved in this slow combustion, originating in a part already dead. The indication, therefore, is not to lose time in employing internal remedies, which are always useless, but to at once remove the limb beyond the gangrened part, and then resort to means of rational treatment. Does not the *vis medicatrix* of Nature, which preserves the whole body by a spontaneous separation of a part, teach us this lesson ?

Art. 62.—*On Mazodynia, or Painful Breast.*

By John Birkett, f.r.c.s.e., &c.

(*Diseases of the Breast, and their Treatment,* 8vo. p. 164.)

In his recent published work on the Diseases of the Breast, Mr. Birkett divides cases of painful breast into two classes.

1st. Those *without induration*, but with or without temporary enlargement.

2d. Those *with* general or partial *induration.*

The first class occurs generally before the cessation of the catamenia, often in early life. It does not appear to be peculiar to any social state ; the single and married, sterile and prolific, being equally liable to it.

The bodily health is generally good ; the nervous system may be in an excitable state. The catamenia are frequently irregular both in quantity and quality.

The patient's sensations are generally that of violent pain both day and night. First, a sensation of cold, then of heat is experienced. The pains extend to the shoulder, down the arm to the elbow, to the neck, and even to the hips. The pain is much increased by manipulation. There is sometimes great irritability of the spinal column. The affected breast is often enlarged, but no solid tumour is to be discovered. It sometimes happens that no alteration in shape is to be detected by the touch, but in other cases a manifest fulness is perceived.

Both glands are often affected—one only may be troublesome.

These neuralgic affections often last for a long time, but not with equal severity, improving and then relapsing for months or years.

In many cases treatment is unavailing, and there is no structural change to be discovered.

The second variety occurs between the ages of seventeen and fifty, both in the single and married. There is usually some catamenial irregularity. The disease is attributed frequently to contusions. Protracted lactation is also a fruitful source of the disease.

The whole gland is a little increased in size, and there is more or less induration, particularly about the peripheral extremities of the lobes, and at the axillary border of the gland. This induration, however, is of limited extent, and its period of existence is very variable, continuing only for some hours, attacking one lobe, then another, or passing across to the opposite breast.

The pain experienced by the sufferer is often very severe, and may be continued, paroxysmal, or alternate in either breast. The organ is exquisitely sensitive to the touch, particularly when pressed from side to side. A continuously dull, or lancinating pain is described, which is either confined to one spot, or radiates in definite directions. It is usually increased at the catamenial periods.

Lobular induration may be felt in different parts of the gland, or small globular knots, about the size of beans, may be detected.

The author has examined two breasts removed for this affection. In these the glandular tissue was atrophied, the ducts in some parts dilated, and the uniting areolar tissue was much enlarged and indurated.

ART. 63.—*On the "Warty Ulcer of Marjolin"* By Dr. ROBERT SMITH.

(*Dublin Quarterly Journal of Medical Science*, May, 1850.)

Under the term "Warty Ulcer," M. Marjolin has described an ulcer which is characterised by the formation of a number of conical granulations, resembling the pile of uncut velvet. The vegetations appear to spring from the dermis, the surrounding cuticle being thick and horny, and separated by fissures, from which a colourless fetid discharge issues, and dries into a crust. This disease, as described by M. Marjolin, closely resembles the warty tumour of cicatrices described by Mr. C. Hawkins. Dr. Smith completes the history of the disease, by describing its appearance, as it occurs over a bone, as the tibia. In this case the medullary canal is sometimes opened by gradual absorption of the osseous tissue; at others, the bone becomes greatly hypertrophied, but even then the compact tissue is absorbed, and the bone becomes irregularly excavated. Among the instances narrated by Dr. Smith, is that of a woman, æt. 45, who after a blow on the great toe, had an ulcer on the spot, which after many changes put on the following aspect:—The end of the great toe was increased in size, and its surface was ulcerated and fissured, with a number of pale warty eminences exuding a fetid fluid. The pain was excessive. The author removed the toe, but the patient died of cancer in the inguinal glands.

Dr. Smith is disposed to regard the disease as allied to cancer, but no microscopic evidence of such a nature was found on examination. As regards treatment, Dr. Smith prefers caustic where the ulcer is small, and amputation where it is extensive.

Mr. Fearnside narrates the following case in which chloride of zinc was used with success:

A man, æt. 55, sustained a blow on the right leg from a heavy cask. A considerable amount of inflammation ensued, upon the subsidence of which there remained a circumscribed swelling of the size of a pullet's egg, which underwent little or no change for some years. About ten or twelve months prior to his coming under the author's notice, he began to experience pain in the tumour, which slowly increased in size, and acquired a dark red colour; the skin covering it was indurated and uneven. Poultices were applied for some time, until the skin gave way, and an open sore resulted, which presented a gray unhealthy appearance. The discharge from it was thin, fetid, and often bloody. From the surface of the ulcer arose a diseased growth, which soon acquired considerable elevation, and from which profuse hæmorrhage took place from time to time; on being removed by any cause it was rapidly reproduced. When first seen, the morbid growth presented the following characters:—From the centre of the front of the right leg, occupying a space of about three inches in diameter, there sprung a dark gray substance, which projected at least two thirds of an inch above the surrounding skin. Its surface had a granular appearance—at first view not unlike the head of a cauliflower; on closer examination, it was seen that this was occasioned by the prominent extremities of coarse fibres which arose from the base of the ulcer, and were collected into masses, separated from each other by deep fissures. The margin of the sore was thickened, elevated, and possessed little or no connection with the fibrous structure above described; the surrounding integument had undergone considerable warty induration and discoloration. A thin, ichorous discharge proceeded from the part; the pain experienced was not violent; there was no enlargement of the popliteal or inguinal glands. He complained of being weakened by repeated loss of blood, but his health was otherwise good. He had been previously under the care of one or two medical men, and had been advised to submit to amputation of the leg, on the supposition that the disease was fungus hæmatodes.

He was seen by Mr. Noble, who considered the case a favorable one for the employment of chloride of zinc: and, accordingly, it was determined to attempt the cure of the disease on the plan recommended by Mr. Alexander Ure, (Med. Gaz., vol. xvii, p. 391.)

On its first application, the remedy was mixed with flour (Canquoin's formula). But little pain was occasioned by it, and the resulting slough was not deep. When it was next employed, it was blended with pure sulphate of lime, as proposed by Mr. Ure. The whole of the morbid growth was covered to the depth of a third of an inch with a paste composed of one part of chloride of zinc and two parts of sulphate of lime. The application gave rise to severe pain, which

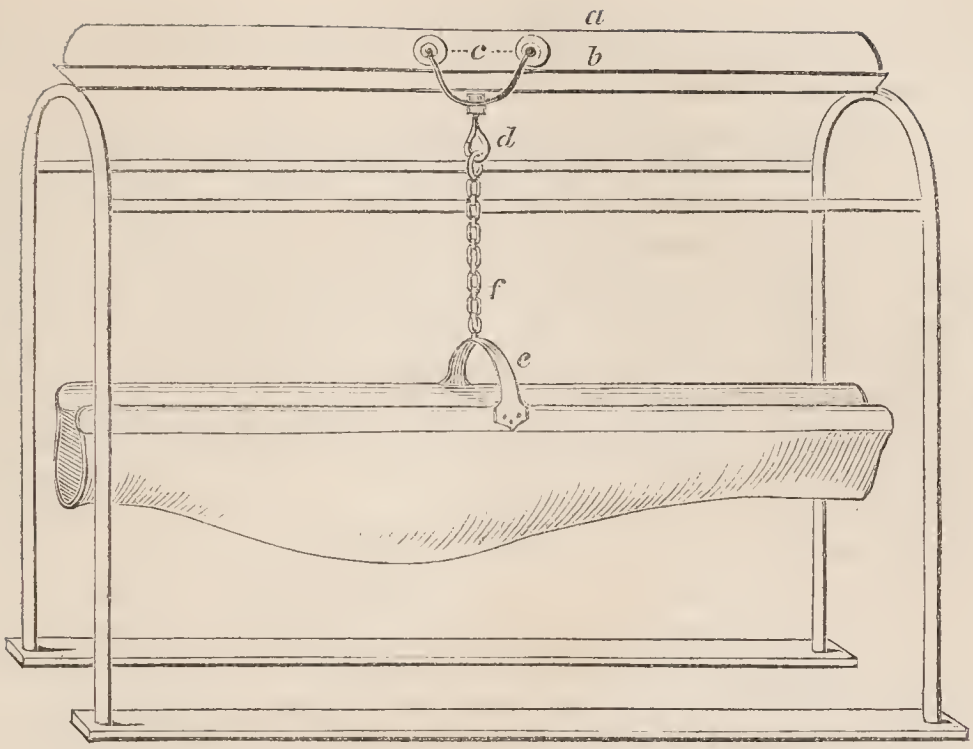
was only partially under the control of opium. At the expiration of four days an extensive and deep slough was produced, which separated in the course of the ensuing week or ten days. The greater part of the sore was then covered with healthy-looking granulations; but, to get rid of two or three small masses of whitish semi-cartilaginous substance, as well as to overcome the indurated condition of the margin of the ulcer, it was requisite again to have recourse to the caustic paste. The subsequent progress of the case was, upon the whole, highly satisfactory. No hæmorrhage ensued after the first complete application of chloride of zinc. In the course of a month small florid granulations had risen to the level of the adjoining surface, and cicatrization commenced. The complete healing of the sore was delayed for some time by the patient's imprudence; for, considering himself well, he could not be induced to submit longer to regular treatment. After the lapse of three months, however, a small ulcer of the size of a shilling was all that remained of the apparently formidable disease; and he afterwards reported himself as cured.

SECT. III.—TREATMENT OF SURGICAL DISEASES.

Art. 64.—*A New Swinging Apparatus for the Treatment of Fracture of the Leg.* By Jas. A. Salter, M.B. &c.

The ends and objects of this apparatus were submitted by Mr. Salter to the Medical Society of King's College, in a paper read before them, and reported in the 'Provincial Medical and Surgical Journal.' The author commences with a history of the various swinging apparatus, which from time to time have been introduced in the treatment of certain fractures of the lower limb, which exhibits a gradual development of mechanism in the arrangements adopted, and then details the advantages of his own. The following is the description of his own invention:—It consists of a cradle similar in form, but rather larger than the one ordinarily used for fractures of the leg, and it performs the office both of a protecting cradle and of a swing.

There are two iron arches connected by six horizontal rods; the rods connecting the extremities of the arches are flat and heavy, so as to make the cradle rest firmly on the bed. The lower of the two rods connecting the summits of the arches is a rail of polished steel (*b*), on which runs the wheels (*c*), that are placed on it, all pressure of the bed-clothes on these wheels being prevented by the rod (*a*), which extends over the rail. The train consists of two brass wheels, and from the axes of these iron plates, extends down on each side to a swivel-hook (*d*), underneath the rail. This train readily moves up and down the rail. From the hook hangs a chain (*f*), consisting of several links, and attached below to the summit of an arched piece of iron—the span (*a*). The span is a narrow strip of iron bent in a semicircular form, having at the extremities two buttons each side,



by which it is attached to the remaining portion of the apparatus—*the crib*. The crib is composed of two flat laths of mahogany, from which hangs a sort of bag of jean for the reception of the broken limb; attached to the strips of wood are two little plates of brass, perforated so as to admit the buttons at the extremities of the span, and by this means the sides of the crib are kept sufficiently near, and also kept sufficiently apart to form a convenient receptacle for the leg.

This instrument is not meant as a substitute for splints, but after the application of splints, the limb is placed upon the expanded crib, which is laid out on the bed underneath it; the sides of the crib are then brought up and buttoned on the extremities of the span; the cradle being now placed over the leg, the span, and with it the leg, is raised, and its hook inserted into one of the links of the chain, that link being chosen the height of which best suits the patient. The adjustment of this contrivance is the work of a moment. It is a matter of indifference which splint is used, for the swinging is quite independent of the setting of the leg and adjustment of splints, and is superadded to it. A single or double-side splint, with a foot-piece, may be employed, or what Mr. Salter prefers, the lower part of a Macintyre's splint, with the thigh-piece, extension screw, and foot-piece removed. This receives the leg and foot very comfortably, and firmly, and they may be bandaged up in the ordinary way, and independent of the swinging apparatus, which is afterwards applied.

The mechanical advantages it possesses are principally these:—Complete protection from the bed-clothes, so that they shall not interfere with the motions of the leg. In all the other apparatus mentioned, excepting Luke's and Hecker's, one extremity of the cord, by which the limb is swung, is external to the bed-clothes, while the other is within. The effect is, that in passing into the bed, almost all motion is prevented by the entanglement of the blankets, and the

arrangements which are necessary to keep the clothes from pressing on the foot and leg, so that the object of the contrivance is pretty nearly neutralized thereby.

The running of the train upon the rail which supports the leg, allows a very considerable amount of motion without disturbing the relation of the parts; the leg may be moved *en masse* eighteen inches without altering the relative height of the heel or knee, so that the patient may completely alter his position in bed without disturbing the adjustment of the leg. From this circumstance, when the leg is thus swung, the patient can sit up in bed to take his meals, or to read and write. When an invalid sits up in bed, that act does not consist in merely assuming the sitting posture—in bending the trunk upon the thighs—but he always instinctively, as it were, draws himself up towards the head of the bed a foot or so, so as to rest his loins against the pillow and bolster, from which he receives no small amount of support. Now, the motion of the train upon the rail, and with it the crib and leg, just allows this posture to be assumed at pleasure by the patient. In the other swings placed under the bed-clothes (Hecker's and Luke's), this is prevented, and the amount of movement very limited, from the fact that the upper attachment of the suspending cord or chain is fixed, and the only motion that the limb enjoys is the swinging in a small arc of a circle, of which the suspending cord is a radius, and its upper attachment the centre.

From the action of the swivel-hook the patient gets another movement—he can shift his body from one side of the bed to the other, while the foot moves in the opposite direction, the leg moving in the same plane upon the axis of the swivel.

I need scarcely point out to you (says Mr. Salter), the great advantages which arise from any apparatus or arrangement which allows a patient, confined to a bed, some change of posture—some relief or change of pressure from those parts of the body on which he rests when lying down. Any one who has seen the most moderate amount of hospital practice, must have observed the distressing consequences which are entailed upon those patients who, through a protracted illness, are confined to bed in one posture, without any change or shift of position. The accumulation of filth and moisture under the patient, the inconvenience and difficulty with which he passes his evacuations, the obstacles to changing his bedlinen, and, above all, the horrid bed-sores, are to be attributed to this circumstance. Bed-sores are pre-eminently the destruction of the bedridden, and result from protracted pressure upon some unrelieved projecting spot—the sacrum, the hips, the scapulæ; and whether it results from paralysis, where the patient does not feel pain in the part pressed upon, and therefore does not care to move his position, or where, from loss of motor power, he cannot change posture if he did feel it; or whether it results from the patient being tied down to his bed by a fixed immovable splint, the result is the same—the skin of his back becomes gangrenous from pressure, a slough comes away, and an unmanageable sore is left, only to be enlarged by the still existing cause. How common is it for a patient who has to pass through the tedious weeks or months which are required to cure a *compound fracture* of the leg, especially if his

case be complicated, as too often happens, with *necrosis*, *exfoliation*, *abscess*, or even *erysipelas*—his leg being fixed all the while in an immovable splint—to sustain bed-sores; but, swing his leg, put him in circumstances where he can sit up when he likes, so that he can pass his evacuations with cleanliness, and be kept dry, and relieve the pressure on any particular spot, and then you will find the cause of the bed-sores removed.

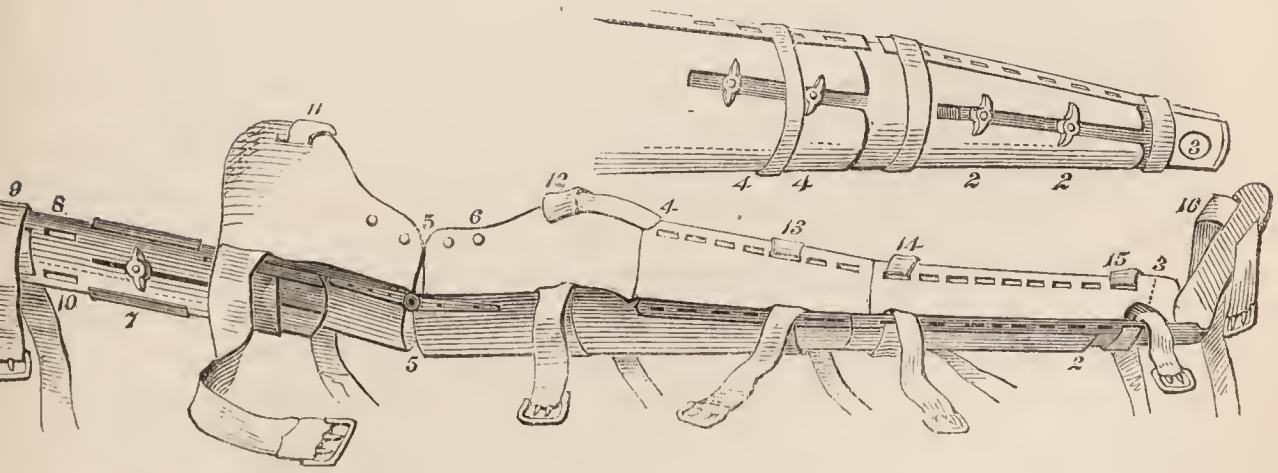
This interesting paper concludes with the detail of the case that gave rise to the construction of the apparatus in question. It was one of compound fracture of the leg; and its progress was attended with every varied complication that could follow such an accident. Many other apparatuses were first tried, but Mr. Salter's proved ultimately the one most adapted for the accident.

Art. 65.—*New Apparatus for Fractures of the Lower Extremities.* By S. Weir Brown, Esq., m.r.c.s.

(*Medical Gazette*, Sept. 27, 1850.)

This apparatus is made of thin sheet-iron, formed into the shape of the limb, and extends from near the axilla down to the sole of the foot (see drawing 1, fig. 11). The part that embraces the leg consists of two portions which slide upon each other (fig. 2; see back view, 2 2), and are firmly fixed underneath by means of screws. The lower part has a foot-piece attached to it; and at the place where the heel is to rest, a piece is taken out so as to prevent undue pressure on that part (fig. 3). The upper part of the leg-piece slides upon the lower por-

1.



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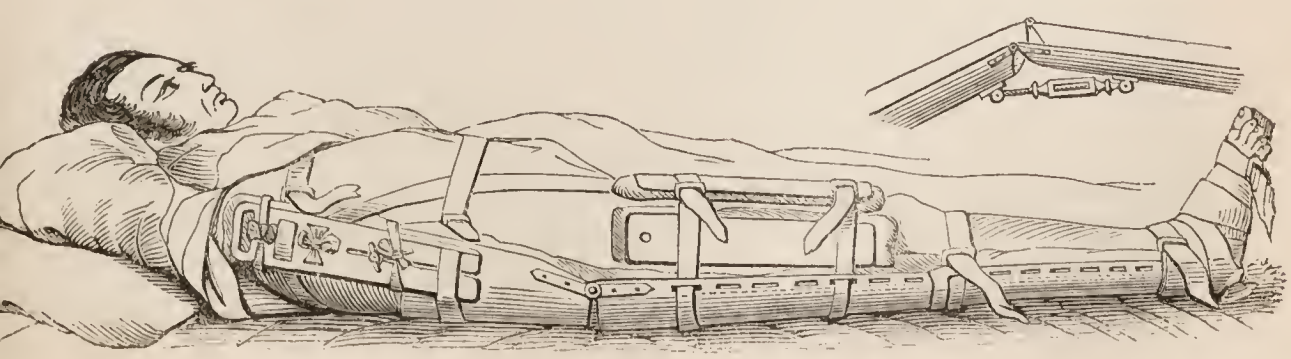


tion of the thigh-piece, and is fixed underneath by means of screws. The upper part of the thigh-piece is attached to the hip portion by two hinges, one upon the outer side, the other upon the inner (vide fig. 55). The hip-piece, which is attached to the thigh portion by means of these hinges, extends by a narrow projecting part half-way up the side (fig. 7), into which another part that is made to draw up towards the axilla slides; the hip-piece expands very much just above the crest of the ilium, and passes over towards the opposite hip, in order to support the sacrum behind; and from this point down to the joint it gradually slopes in, so as to leave the perinæum free (fig. 6).

This apparatus, as has been shown, consists of four distinct portions; two for the leg; one for the thigh, the upper portion of which, or hip-piece, covers and adapts itself to the formation of the hip and hip-joint, so that by means of the slides the apparatus can be lengthened or shortened, according to the length of the patient's limb. The upper and outer side of the hip-piece that extends upwards receives the fourth piece, which is fixed in its slide by means of a screw, so that this part of the apparatus can also be lengthened or shortened according to circumstances. At the upper part of the fourth piece there are two openings through which a piece of webbing is passed for the purpose of fixing this part of the apparatus to the chest (fig. 9); and this strap is kept in its place by two pieces of tape which cross each other, being fastened before and behind. Immediately below the above-mentioned openings there are two others through which pass the ends of the perineal band, for the purpose of making counter extension (fig. 10). At a short distance lower still there are two more openings, one opposite the other, through which a band is passed to fix the pelvis to the apparatus (fig. 11). Immediately below the hip-joint are two other openings, one on each side, through which a strap is passed to fix the upper part of the thigh (fig. 12). Above and below the knee-joint are two more openings, opposite each other, through which straps are passed to fix the limb above and below the knee (figs. 13 and 14); and at the ankle-joint and upper part of the foot-piece are other openings of a similar description, for the purpose of fixing the ankle and toes (figs. 15 and 16).

Before applying the apparatus, a soft cushion, well padded with wool, of the size and shape of the apparatus, but rather broader, is placed in it, or an air cushion of similar shape and size. As soon as one or other of the above cushions has been properly adjusted, the limb is to be put into the apparatus, and a two-head roller applied round the ankle, which must first be defended by leather-strapping and wool: the perineal band is then to be tightened, and securely fixed, and extension of the limb made, by drawing the leg down, and fixing the foot, by means of the roller, to a projecting handle attached to the foot-piece, which firmly fixes the whole limb. After this has been done, should one end of the bone rise above the other, and the broken limb be found shorter than the sound one, all that is required to be done is to loosen the joints of the apparatus, by turning the screws that fix them, and gradually lengthen them until the limb has been sufficiently elongated, when they are again to be fixed by the

screws. The transverse straps above described are next to be brought round the limb and firmly fixed, which will necessarily keep the broken ends of the bone in apposition ;—indeed, the author thinks it must be evident, after this apparatus has been properly applied, that displacement can hardly take place ; because the limb will lie upon, and be supported by, a smooth surface throughout its whole length, from the crest of the ilium to the sole of the foot. The action of the strong muscles situated on the back part of the hip-joint, the extensor muscles of the thigh, the flexors of the leg, and the extensors of the foot, will be overcome, and can hardly displace the ends of the broken bone ; and if pressure be found to be required at any particular point on the anterior part of the thigh, there is no necessity for having recourse to any kind of bandage ; all that is requisite to be done is to loosen the belt that is placed above the knee, and the one at the upper part of the thigh ; then to place over the point where the pressure is required as many well-padded short splints (drawing 2) as may be necessary to support the part, and to fix them by again drawing the above-named straps tight ; and, as it is not necessary while doing this to move the apparatus, or in any way to alter the position of the patient, the fractured part of the bone can at all times be examined without the slightest inconvenience.

Another important point connected with this apparatus is, that the patient can raise himself up a little in his bed ; for, as his body is fixed to the portion above the joint of the apparatus, he is enabled to flex it at this joint, and still there will be kept up sufficient extension, counter-extension, and also pressure on the muscles of the hip behind, to prevent the broken ends of the bone from being displaced ; whereas, where the common splints are used, however skilfully they may be managed, the efforts of the pressure to raise himself up for the purpose of eating, drinking, &c., too frequently cause displacement of both spints and bone. In cases where the fracture has taken place high up, and the upper portion of the bone is displaced by the action of the psoas and iliacus muscles, the lower portion must be brought into a line with the upper, which can easily be effected by raising the under part of the apparatus, which will bend at the hinge opposite the hip-joint, and still continue to keep up, from behind, a firm pressure upon all the muscles of the hip, thigh, and leg ; and as success in the treatment of fracture of the femur depends chiefly upon being able to counteract the action of the muscles, and to keep the limb unmoved until after consolidation of the callus has taken place, the author believes that the above apparatus will satisfactorily accomplish those important objects. This he has proved in a very severe case of compound comminuted fracture of the thigh-bone, in which, after every other plan of treatment had failed, this apparatus was used with much greater success than could possibly have been expected under the peculiarly unfavorable circumstances of the case. The author further observes that, in cases where the femur is fractured above, or at its middle, extension from the lower part of the bone itself, may be advantageously made, through means of this apparatus, by passing round the knee a rather broad, firm, well-padded knee-

band, to which two short straps, with buckles at their ends, are fixed, one on the outside, the other on the inside of the joint; then, by passing round the outside of the foot-piece, below the projecting handle, the middle of a long leather strap, the ends of which, having been brought up close to the leg as far as the knee-joint, are, as soon as the broken bone has been properly placed, to be pushed through the above-mentioned buckles, drawn tightly, and secured, which will cause sufficient extension above the knee to prevent the inferior portion of the broken bone from being drawn upwards; and as soon as this has been done, the leg and foot should be extended, and firmly fixed in the apparatus, as above directed. The author has not yet had an opportunity of trying this method of treatment, and cannot, therefore, at present speak positively as to its effects; but where the thigh-bone is broken as high up as its middle, it appears to him to be plain, from the construction of the apparatus, that it might, in the manner just described, be so used as to render the risk of after-displacement of the ends of the broken bone but very small; because in this way, if properly managed, extension will necessarily be made and kept up from the lower end of the broken bone itself, in a line with the upper portion, the leg and foot being at the same time extended and fixed, as above described, by means of the bandage at the ankle.

In cases where the patella is broken transversely, the apparatus now under consideration will be found to be of great value; for, as it bends at the hip, the limb, when placed in it, may be elevated to the proper height, and, at the same time, the body, by means of the hinge at the hip-joint, can be raised as high as may be requisite, which, in the author's opinion, is the best position in which a patient with a transverse fracture of the patella can be placed. The apparatus, also, may be used in fractures of the leg: can also be made to answer the purpose of a double-inclined plane for the thigh and leg, by placing a hinge below the knee with a screw, by means of which, and the hinge at the hip, the leg and thigh, when placed in the apparatus, can be bent to, and kept at, any angle that may be required.

Art. 66.—*Case of Successful Excision of the Elbow.* By Dr. Thompson.

(*Dublin Medical Press.*)

James McGhinty, æt. 13, of healthy appearance, was admitted into the Tyrone Infirmary, on the 19th of December, 1849, labouring under disease of the left elbow. He stood with the fingers of the left hand grasped in those of the right, and seemed to be particularly cautious of allowing any shock to be communicated to the left arm, which was fixed in a position very nearly straight, the elbow-joint admitting of scarcely any motion, and any attempt to move it producing severe pain. The joint had completely lost its natural shape, the flexure in front being filled up, and all the bony prominences obscured by a swelling, which extended from the middle of the arm to the lower margin of the upper third of the forearm, increasing the

circumference three inches beyond that of the opposite side. The integuments were adherent, rather pale in colour, with blue veins ramifying over them, and the surface smooth and uniform, except on the outside of the olecranon, in the situation of the outer condyle, where a prominent deep red and soft elevation indicated the pointing of an abscess. From this, and from the site of a fistulous opening, which existed on the inside, about two inches above the inner condyle, a gradually diminishing shade of redness diffused itself over the neighbouring parts. A fungoid granulation projected from the fistulous opening, which yielded a small quantity of thin discharge, and a probe passed into it, took a course downwards and outwards towards the centre of the articulation, where it encountered a piece of bare and roughened bone. He suffered little pain when he kept the arm steady, but at night it frequently prevented his sleep. The sensibility and mobility of the hand and fingers were perfect. His general health was pretty good, but his pulse was small, and 120, and he never slept without perspiring slightly about the head.

Ten weeks before admission he had fallen in a ditch, the arm bent under him with a cracking noise, and he suffered so much pain as to be disabled for that day. On the next, however, he was so far recovered as to be able to use the limb, and he spent the day dropping potatoes. In the evening pain set in, and next morning the joint was swollen. From this the disease went on without a check; in fact, nothing was done for it until lately, when an abscess was opened, which pointed above the inner condyle of the humerus. A small quantity of sero-purulent fluid was discharged without relief, and nothing more was done until his admission into the hospital. The author, considering it to be a fair case for excision, the operation was performed on the 28th of December, as follows:

The boy was placed on his right side on a table, in such a position as to bring the back of the left elbow under the light. Chloroform was administered, until he was perfectly under its influence, and the brachial artery compressed by a finger. The author had previously marked with a pen the line of the ulnar nerve, which he discovered by the peculiar sensation caused by pressure over it, the anatomical landmarks being absent; and along the radial side of this line he made an incision four inches long, the centre corresponding to the site of the articulation. From the middle of this, another incision was carried transversely outwards to the extent of three inches, traversing the abscess, which contained a straw-coloured sero-purulent fluid, and laying open the cavity of the joint. The two triangular flaps thus formed were then dissected off the bones, and the soft parts cleared away from the olecranon, which was cut off at its base by means of bone forceps. About half an inch more of the ulna, which was in a carious state, was then removed, together with the head of the radius, the cartilage of which was beginning to ulcerate. The arm now admitted of flexion, and by bending it up, the end of the humerus was thrown out of the wound. This was particularly examined, and the trochlea found completely destroyed, an abscess occupying the cancellar structure of the bone, which contained a loose piece of dead bone, and communicated by a large opening with the cavity of the

joint. The cartilage covering the capitulum was healthy, and posteriorly a carious spot, about the size of a shilling, was found in the fossa which lodges the olecranon. The bone was then divided above this carious spot, by means of a narrow saw passed in front, and worked backwards. This completed the operation, which occupied about fifteen minutes, during the whole of which time the boy was kept under the influence of chloroform.

The divided ends of the bones were then closely examined, splinters removed, and the wound closed without the necessity for tying a vessel. Three sutures were required to keep the edges together, but the soft parts were all so infiltrated and indurated that union was not hoped for. The arm was then placed in the flexed position on a bent tin splint, and lightly covered with a wet cloth.

Subsequently, when suppuration had taken place, and the swelling and inflammation was beginning to subside, a gutta percha case was adapted to the front of the limb, in such a manner as to keep it flexed to about half a right angle, and admit of the wound being dressed without removal in this position. The wound healed by granulation, and a firm and healthy cicatrix was the result. The splint was then removed, and he was permitted to make use of the limb, which was at first rather awkward, but rapidly improved, and he has now (April 19, 1850), acquired a perfect use of it. The sensibility and power of the hand and fingers are perfect. He can flex the elbow to the full extent, and direct his hand to any part of his person to button and unbutton his dress, feed himself, &c. He can also perform the motions of pronation and supination to an extent sufficient for any useful purpose. He can use a spade, wheel a wheelbarrow, and lift considerable weights; in short, perform with perfect ease all the natural motions of the limb. The unnatural effects which have resulted from the loss of the joint are, a degree of over-extension, or backward bend, to the extent of about the eighth of a right angle, and a degree of abduction of the forearm occurring during flexion, and produced by the action of the supinator longus to the extent of about an angle of 45. Neither of these abnormal conditions seem to interfere with the use of the extremity. When not using it, he allows it to hang in rather a loose manner at his side, and the bones appear to be connected by a condensed fibrous tissue, about half an inch in extent. The limb is three-quarters of an inch shorter, and the circumference at the elbow half an inch greater than the opposite; the muscles of the arm are smaller than those of the other, but there is no difference in those of the forearm, and the limb is becoming stronger and more useful every day.

ART. 67.—*On Excision of the Os Calcis, in Incurable Disease of that Bone, as a substitute for Amputation of the Foot.* With a case, by WILLIAM BOUSFIELD PAGE, Surgeon to the Cumberland Infirmary, Carlisle.

(*Medico-Chir. Transactions.*)

Until a comparatively recent period, amputation below the knee was looked upon as the only resource in incurable disease of the larger

tarsal bones. This mode of treatment has, however, been very generally superseded by amputation at the ankle-joint. Although, in the majority of instances, strumous disease of the tarsus is not confined to one bone, and the results of partial removal are consequently very frequently unsatisfactory, exceptional cases are not rarely met with; and when the os calcis is alone affected, the author has failed to discover any valid reason which can be urged against the excision of that bone. When considering the subject in reference to the following case, the only difficulty which at all forcibly presented itself to his mind was the possibility of inflammation, extending from the articulations of the cuboid bone, generally throughout the lesser tarsal joints, and so giving rise in a strumous subject to disease as incurable as that which called for removal. A somewhat similar objection has not unfrequently been made against amputation at the ankle-joint, from the injury which is thereby inflicted on the lower extremity of the tibia; but the successful result of between thirty and forty cases in the hands of Mr. Syme alone has proved this fear to be groundless.

At the time the author operated on the patient, he was not aware that a similar case had been, a short time before, subjected to the same treatment by Mr. Hancock; but, as its unsuccessful termination prevented any decision being arrived at as to the value of the operation, he was not thereby deterred from bringing the subject under notice, in the hope, that in the hands of other surgeons, exarticulation of the os calcis may be resorted to with results as satisfactory as in the following case:

William G—, an unhealthy, ill-nourished, scrofulous boy, æt. 16, was admitted into the Cumberland Infirmary, July 29th, 1848, with disease of the right tarsus, the result of a slight injury he had received several years before. From the time of the accident the foot was swollen and painful, but suppuration and ulceration did not occur until six months before his admission, since which time he has been unable to put the foot to the ground, has suffered much pain, and his health has been greatly impaired. The whole of the back part of the foot was considerably enlarged, and immediately below the inner ankle was an ulcer from which several sinuous passages proceeded to the bone, through which a probe could readily be passed into two distinct parts of the substance of the carious os calcis, one of these being in its anterior extremity. The disease appeared to be altogether confined to that bone. Although it was in vain to look for the restoration of the limb to health, by any other means than the removal of the affected part, it was advisable, in his debilitated condition, to wait, that he might have all the advantages which were likely to result, from his removal from his own ill-drained and unhealthy home, to the purer atmosphere of the hospital, and a full and nutritious diet.

With rest, and nourishing food, and by the administration of cod-liver oil, his condition gradually, though slowly, improved; but his foot, now seldom very painful, manifested no sign of amendment. Further examination served but to confirm the original impression, that the disease was confined to the os calcis, and it therefore seemed desirable, that that bone alone should be removed. As a careful consideration of the anatomical construction of the foot offered no objec-

tion to this, and as the author believed that the foot would answer all the purposes of locomotion without it, he determined on its extirpation.

October 9th: Insensibility having been induced by means of chloroform, an incision, down to the bone in its whole extent, was made from the lower margin of the ulcer, that is, about half an inch below the inner ankle, directly below the sole of the foot, to just below the fibula. This incision would have enabled the operator to remove the foot at the ankle-joint, if the disease of the tarsal bones had proved more general than was anticipated. A careful examination, at this period of the operation, having determined him to proceed in his original design, the posterior flap was carefully reflexed from the surface of the bone, the insertion of the tendo-achilles separated, and the joint between the astragalus and calcanium reached.

By the introduction of a small narrow-bladed scalpel, the author succeeded in dividing the ligamentous structures on either side, and also the inter-osseous ligament. This last was the only part of the operation attended with anything like difficulty, forcible depression of the os calcis being necessary to admit of the division of the more distant parts of the inter-osseous ligament, while at the same time great care was required to prevent him injuring the astragalus. He next made two incisions, one on either side of the foot, commencing at the junction of the os calcis with the os cuboides, and ending at the extremities of the first, or transverse incision; dissected this flap from the under surface of the bone, readily separated the connection of the calcanium with the cuboid bone, and after a few touches of the scalpel, the former, with scarcely a particle of soft parts attached, was removed. The astragalus and cuboid bones appeared quite healthy. The two plantar arteries, which had been divided near to their origin, and two or three small vessels in the anterior flap were tied, the parts placed in apposition, and retained by means of strips of lint dipped in cold water, oil silk and bandage, and the limb was placed on a splint placed on its outer side.

For several days he went on as well as could be desired; but after that, suffered much, both generally and locally, from acute inflammation of the tarsal joints, which resulted in the formation of an abscess in the dorsal surface of the foot. This was opened, the wound speedily healed, and no recurrence of a like nature took place. About this time, erysipelas and phlebitis attacked, in rapid succession, every patient with wound in the hospital, and the subject under consideration did not escape. Happily, however, in him the disease was confined to the affected limb, and was altogether less severe than in some other cases, although, for several days, his recovery appeared extremely doubtful. After recovering from this attack, his general health, as well as his foot, gradually improved, and at the end of the tenth week the wound was healed, the foot was firm, and in shape not materially different from the other.

He left the hospital, January 17, fourteen weeks after the operation. At this time, he was able to bear considerable pressure on the heel without suffering; but as the author knew that slight injury might lay the foundation of important disease, he forbade him to use the foot,

or wear a shoe for several months. At the end of six months, he again presented himself, with his foot perfectly well, and he was permitted to use it as he thought fit.

It is now sixteen months since the operation, and the foot continues sound. When sitting, he is able to extend the foot perfectly, and imperfectly when standing, but in walking, the spring of the foot is so nearly lost, that he has a slight limping in his gait. He wears a boot, in which a piece of cork supplies the place of the lost bone; he can walk, run, and jump, with little impediment; in short, for all the uses of a foot, it is as serviceable to him as the other.

Since writing the foregoing, the author has received the particulars of three cases, in which excision of the os calcis has been resorted to in the Newcastle Infirmary, for extensive caries of that bone; the first two cases were under the care of Mr. Greenhow, the last under that of Mr. Potter, and all, the author was informed, have been attended with success, to a greater or less extent. In the first patient, the operation was followed by some sloughing of the flaps, but the wound afterwards cicatrized favorably, and when last heard from, the man was following his usual laborious occupation, that of a pitman, in Wales.

In the second case, the patient, also a pitman, from whom portions of the calcaneum had been twice previously removed without benefit, the report states, that in less than a month from the date of the removal of the bone, "the wound had almost healed up, and the deformity was not very great." No proper estimate, however, can be formed in this case of the value of the operation, as disease of a similar nature to that in the foot "has since appeared in the hip joint, and he is also affected with phthisis."

In the last case, a very scrofulous lad, æt. 15, by trade a tailor, the calcaneum was removed entire, and at the same time, a part of the surface of the astragalus, which was also diseased, was gouged out; the report states, that "the wound united by the first intention, and the case did exceedingly well; two fistulous sores, however, remained open, and communicated with the diseased astragalus, but he was dismissed two months after the operation, walking on his foot, with a pad in his shoe at the heel."

Art. 68. — *On the Employment of Forced Flexion for arresting Hæmorrhage in Wounds of the Palmar Arch.*

Mr. Durwell prefaces a case of wound of the palmar arch by some general observations on the modes of treatment which have been advised in this accident, and points out certain known objections to each. The following abstract presents the chief features of the case, and Mr. Durwell's subsequent observations:

A woman fell from a ladder, having a bottle in her hand. The bottle was broken, and fragments pierced the palm. Mr. Durwell, on arriving at the poor woman's cottage, found the palmar arch wounded; and he had no means of securing the artery. While controlling the hæmorrhage by pressure on the brachial artery, the following sentence

in M. Malgaigne's ' Anatomie Chirurgicale' occurred to his mind :— " The only points at which obliteration of an artery can be obtained by position alone, without the aid of external compression, are at the bend of the arm and knee—a fact which is of great importance in reference to the arrest of hæmorrhage." Acting upon this statement, Mr. Durwell immediately bent the arm on the forearm at an acute angle; the hæmorrhage was immediately arrested. Advantage was taken of the circumstance to effect a definite cure. The arm was retained in its flexed position by bandages, so that the pulsation of the radial artery was completely intercepted. The wound of the hand was treated as an ordinary wound, and, for the sake of precaution, compresses were laid over the course of the arteries of the forearm. The cure progressed favorably. On the third day, as the patient complained of the restraint of the posture, the arm was slightly extended, and it was noticed that a small portion of florid thin blood oozed from the wound. The arm was restored to its flexed position, and in a short time the vessels and the external wound had perfectly healed.

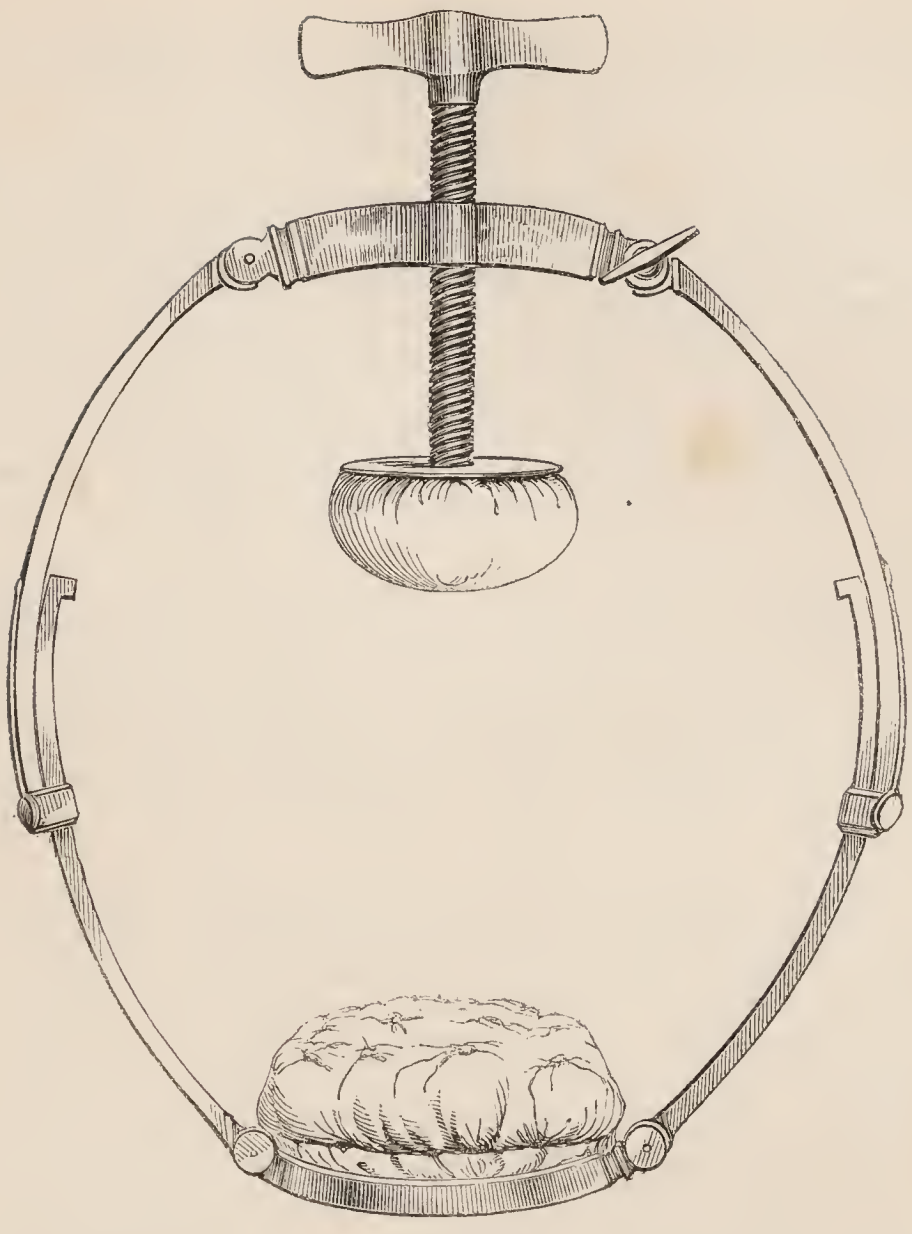
In this manner a wound, usually regarded as of a very serious character, was safely and speedily cured by a proceeding as simple and unobjectionable as has ever been proposed. It must be attended with success when employed in analogous cases, and, from its simplicity, should be tried in the first instance in every case. Mr. Durwell observes justly, that it would be rash to make a more general application of a single fact, as there may doubtless occur complications, rendering its employment impossible or unadvisable; but, at the same time, he adds that this principle may be found, by further experiment, to be useful on other occasions, for the obliteration of the popliteal and humeral arteries. This principle he lays down in the proposition —" that in most arterial lesions of the forearm and leg, prolonged forcible flexion supersedes the ligature of the vessels."

L'Union Médicale, and *Medical Gazette*.

Art. 69.—*New Form of Tourniquet.*

In an amputation by Mr. Lawrence, a new tourniquet was employed, which was invented by Mr. Skey and manufactured by Mr. Fergusson, a representation of which we give on the opposite page.

It will be noticed that this tourniquet is intended to encircle the leg or thigh completely; it requires no piece of roller or bandages of any kind, and is, so far as we have seen, adapted with the greatest ease. The two elliptical halves are made of steel, about a quarter of an inch thick; they are connected above with the plate holding the screw, by two hinges, one on either side of the plate; and likewise connected with the plate which supports the cushion below, by two other hinges on either side of the latter. All stiffness is thus thoroughly avoided, and the circular figure formed by the whole instrument may be altered in various ways, and adapt itself to the shape of the limb. The hinge on the right side of the screw is provided with a peg, which, by being withdrawn, allows the branch to be completely separated



from the plate, and the instrument to be opened, for the purpose of applying it or taking it off. It will be perceived at one glance, that the cushion below is intended for the posterior part of the limb; and when the pad attached to the screw is directed downwards, and applied to the artery, the thigh is not tightly surrounded and the return of the venous blood arrested, but the pressure on the artery is effected merely between the pad above and the cushion below. On examining the centre of the rods, it will be seen, that they are composed of two equal parts, the upper receiving the lower in a ring, by which contrivance they may slide upon one another, and the instrument be rendered more or less capacious, to meet the neeessities of any size. The sliding parts are provided with holes and a peg, by which the form of the tourniquet may immediately be fixed.

Lancet, Oct. 2, 1850.

Art. 70.—*Aneurism of the Femoral Artery,—Ligature of the External Iliac.* By Henry Smith, Esq., f.r.c.s.

(*Medical Times*, Oct. 12, 1850.)

The subject was a spare man, of temperate habits, æt. 37. He had an aneurism the size of an orange in the upper part of the thigh. The external iliac was tied at the suggestion of Professor Fergusson.

The patient being placed under chloroform, a curved incision was made from the anterior spinous process of the ilium to the external abdominal ring. The tendon of the external oblique, and fibres of the internal oblique and transversalis, were cut through; the other tissues being then cautiously divided, the ligature was applied from within outwards and the vessel tied. The patient had not a bad symptom.

[The operator remarks, as follows, on the case:]

This is perhaps one of the most rapid cures on record, after ligature of the external iliac, and is to be attributed to the excellent health of the patient. Ligature of this vessel has been performed so many times with success, that the surgeon may resort to it with greater confidence than an operation on any of the great arteries. It is difficult to obtain accurate statistics, but as far as we have done so success has been great.

[For the most complete statistics of this operation, see Dr. Norris's paper, of which an abstract is given in our Fifth Volume, p. 219. The author gives his reasons for not trying compression. He says:]

My own observation of the treatment of aneurism by pressure has been confined to one case alone, and the result here was by no means such as to lead one to a favorable opinion of this plan of treatment. But, I am bound to state, that the patient himself, from an over anxiety to get well quickly, was the main cause of the unfortunate circumstances which arose; for he screwed up the tourniquet with such vigour when he was left alone, that an excessive amount of sloughing occurred, and it was impossible to follow up the treatment. From the occurrence of such a casualty in one case alone, it would be absurd to form any opinion. This must be arrived at from the observation of cases where the plan has had a fair and unequivocal trial. Such a trial has been made by numerous surgeons, especially by that distinguished body of men who are at the head of the surgical profession in Dublin, and the results have turned out to be most satisfactory. It was not, therefore, from a want of conviction on my mind of the efficacy of pressure that it was not used in this case. I did what I considered to be my duty under such circumstances. I submitted to my patient the choice of either proceeding, but did not press either upon him. He at once, without hesitation, said he would rather "be cut," and thus relieved me of a great amount of responsibility. In my humble opinion, it is the duty of the surgeon, when he has to treat a case of aneurism which is so situated that compression can be applied, to place both plans before the patient; for the experience of the last few years has, without doubt, shown that compression is, when properly applied, a most efficient agent, and I believe

a safer one than the ligature. Professor Miller has, in his second edition of the ' Principles of Surgery,' pointed this out as clearly as any one, and has, in a brief space, fully discussed the *pros* and *cons* of the plan of treatment by compression, in a most impartial and unprejudiced spirit; and this is the more to be admired, as the author himself has had an unfortunate experience of it; and, moreover, he belongs to a school where most violent and absurd opposition has been offered to one of the most useful discoveries in modern surgery.

My reasons for not performing the simple, and apparently less dangerous operation of tying the superficial femoral artery were, that in the first place, it would have been necessary to place the ligature just below the trunk, which carries a large stream of blood to the deep parts of the thigh; consequently, from this cause alone, there would have been a great chance of secondary bleeding. In the second place, it was impossible to say in what condition the artery just above the aneurism was in. We all well know that, in such a case, the disease of the coats of the vessel too often extends some way up from the situation of the tumour itself, but we have no possibility of correctly ascertaining this point; in order, therefore, not to run any danger of incurring secondary hæmorrhage by placing a ligature around a diseased artery, it is better to tie it in a position where there is little chance of its being unhealthy. Influenced by these reasons, then, I gave up the thought which I first entertained of tying the superficial femoral, and preferred tying the iliac, which, although a much more formidable proceeding, and one probably attended with more immediate danger to the patient,—for he may die within forty-eight hours of peritonitis, as in the celebrated case of the late Mr. Liston, where he operated upon Captain Seton,—nevertheless, it has not, I believe, been attended with less success than has followed ligature of the femoral; indeed, statistics tend to show, that ligature of the external iliac has turned out to be the most successful operation of any on the large arteries of the body.

I had the option of tying the common femoral, and why was this not done? It is true that it might have been easily accomplished, and, in all probability, this artery would have been found in as healthy a condition as the iliac; but ligature of this trunk, in the few cases that it has been done, has proved to be so unsuccessful that a surgeon would not, I apprehend, think of resorting to it if he could possibly avoid it. There are two large branches above, and below is the profunda, and of course the vessel must be tied between them, and it is not necessary to state how unfavorable it is to have a ligature on an artery close to any large branch,—how adverse such a circumstance is for the occurrence of those phenomena which are essential to the proper separation of the ligature without hæmorrhage. Secondary bleeding is very liable to happen. In Abernethy's famous case, he first tied the common femoral for aneurism, but tremendous hæmorrhage occurred after some days, and he was obliged to resort to ligature of the external iliac.

Art. 71.—*New Operation for Tying the Internal Carotid Artery.* By Mr. Guthrie.

In his surgical lectures published in the 'Lancet' (1849), Mr. Guthrie proposes the following severe proceeding; it is well to premise it has never been performed on the living subject:—An incision is to be commenced opposite to, and on the outside of the extremity of the lobe of the ear, and carried downwards in a straight line, until it reaches a little below the angle of the jaw, at the distance of about half an inch, more or less, as may be found most convenient from the form of the neck. This incision exposes the parotid gland without injuring it. A second is then to be made from the termination of the first, extending at a right angle forwards, under or along the base of the lower jaw, until the end of it is opposite the first molar tooth. This incision should divide the skin, superficial fascia, platysma myoides muscle, and the facial artery and vein. The second molar tooth should then be extracted, and the jaw divided at that part. The deep fascia, the mylo-hyoideus muscle, and the mucous membrane of the floor of the mouth are next to be cut through, the insertion of the internal pterygoid muscle being exposed and divided. The surgeon will then be able to raise and partially evert the angle of the jaw, thus obtaining room for the performance of the remaining part of the operation, which should be effected by the blunt end of a scalpel, or by some other instrument chosen for the purpose of separating, but not of cutting, the parts. The styloid process of the temporal bone may next be readily felt and exposed by the separation of a little cellular membrane, and with it the stylo-hyoid muscle, which is to be carefully raised and divided. When that has been done, the external carotid artery will be brought into view, together with the stylo-pharyngeus muscle, and the glosso-pharyngeal nerve attached to it. These are to be drawn inwards by a blunt hook, when, if care be taken to avoid the pneumogastric nerve, the internal carotid may be felt, seen, and secured by ligature with comparative facility outside the tonsil, there being between them the superior constrictor of the pharynx, which, in the case of such a wound through the mouth, must have been divided. The pneumogastric nerve should be drawn outwards, and the external carotid artery also, if in the way. Mr. Guthrie observes that the section of the jaw will not, in all probability, lead to future inconvenience; the bone always reunites, when divided, with little difficulty. That this operation requires a thorough knowledge of the anatomy of the parts is true, and this can only be acquired by dissection. He has never performed it on the living body; but Mr. Hancock and he have bestowed great pains in the dissecting-rooms of the Charing-cross Hospital, in ascertaining what appeared to be the easiest mode of doing it on the dead. The parts have been frequently dissected at the College of Surgeons also, for the same purpose, by the assistant-conservator and the students in anatomy.

Art. 72.—*Acetate of Lead for Granular Lids.*

Dr. Cunier, of Brussels, has recently published the successful results of the practice of Dr. Buys in granular lid. His treatment consisted in the application of the acetate of lead to the palpebral conjunctiva, instead of the nitrate of silver commonly used. Dr. Buys takes neutral acetate of lead, reduced to an impalpable powder, dips a moistened pencil into it, and takes up about a grain, or a grain and a half of the salt, which is enough for one lid. When the lid is touched, it should be kept everted until the tears have dissolved the acetate, and those portions of the salt which escape solution should be taken off with the pencil. On the upper lid the tears will be insufficient to dissolve the salt, and moisture must be applied to it from the angles of the eye. As soon as the acetate is dissolved by the tears, and has penetrated the tissues, the latter are noticed to contract powerfully, and a very remarkable phenomenon takes place; for the granulations, and the grooves between them, disappear at once, if they be of a moderate size, and the conjunctiva looks smooth and uniform as long as it remains exposed to the air; but the shining, white colour produced by the lead is perceived only when the lid comes again into contact with the globe of the eye. When the granulations and furrows between them are large, two or three applications are necessary to obtain smoothness; one, however, is sufficient when they are not of great size. These applications produce more burning and astriction than pain, and when the lid is replaced, hot and whitish tears escape, the flow of which may last from a few seconds to two or three minutes; it rarely lasts longer, and the eye can then be kept open. When the granulations are of an indolent character, the slight injection of the ocular conjunctiva, which occurs on the application of the lead, goes off rapidly; if, on the other hand, the cornea be vascular, the vessels become smaller soon after the cauterization of the lids. Slight œdema of the palpebræ may follow, but in twenty-four or forty-eight hours it wholly disappears; a dry compress rubbed with camphor will hasten resolution, and likewise lessen the burning sensation, if the latter happen to persist. One lid only should be touched at a time, and not again be interfered with, unless all trace of the salt is removed. Dr. Buys has used the lead in a great many cases of contagious ophthalmia among the military, and Dr. Cunier in acute and chronic catarrhal ophthalmia; the results seem to have been more satisfactory in the latter variety, as also in scrofulous affections of the eye, vascular cornea, and ulcers of that membrane. The mineral has likewise succeeded in cutting short incipient inflammation of the organ.

Art. 73.—*Treatment of Ophthalmia Neonatorum.*
By Dr. Frœbelius.

(*Journal für Kinderkrankheiten*, and *London Journal of Medicine*, Oct. 1850.)

1. In the commencement of the disease, while the swelling, redness, and secretion of mucus are moderate, and if the intestines are regular

in their function, the eyes should be frequently and carefully cleaned with tepid water; they should also be protected against hurtful external influences, and this is best effected by dropping almond-oil into them twice a day. At the beginning of the disease, especially before purulent secretion commences, cold applications are much to be recommended, especially when they can be very diligently renewed. 2. If the palpebral conjunctiva were very remarkably swollen, the redness darker, and the secretion of pus so much increased as to flow during sleep from the inner angle of the eye, a solution of corrosive sublimate in the proportion of gr. j to ℥j of water, with 3ss of tincture of opium, was applied. 3. If the redness were very vivid, and the hard swelling of the eyelids increased, so that they were difficult to open, and if there were discernible swelling and redness of the sclerotic conjunctiva, especially when the mucus appeared mixed with blood, a leech was applied to each temple, and almond-oil was continued as an emollient remedy, and to prevent the agglutination of the eyelids. 4. For photophobia and spasms of the lids, a solution of 3ss of extract of belladonna in ℥ij of water was used; ten drops of which were poured on the hand, and rubbed into the supra-orbital and temporal regions several times daily, according to circumstances. 5. When the swelling of the lids, photophobia, and the spasms have disappeared, and when the inflammation of the bulb has ceased, but there is still profuse purulent secretion with commencing granulations, then a solution of gr. j to ij of nitrate of silver in ℥j of water is applied several times. 6. The treatment of granulations of the palpebral conjunctiva varies according to the degree of the disease and its prevailing type: and it is further influenced by the character and duration of the disease. The blue red swelling in the fold of the conjunctiva, as soon as the eyelids exhibit congestive redness, and the secretion principally consists of a white mucus, is opened in its long diameter. The bleeding which follows is encouraged by means of tepid water, and finally cold applications are used to prevent reaction. Dr. Fröbelius here mentions, that the artificial leech, introduced a short time before by Knusmann, had been found of great use. This instrument not only perfectly supplies the place of leeches, but also seems to possess some advantages over them. If the granulations are scarlet red, with an elastic inflammatory swelling of the eyelids, and much purulent secretion, photophobia, and spasm of the lids, and if, as is usually the case, the child be strong, leeches, followed by the artificial leech to each temple, are the most successful remedies. The emollient remedies before mentioned are to be also employed, together with friction of mercurial ointment and belladonna on the region of the eyebrows. This treatment is more particularly demanded, if spontaneous hæmorrhages or aphthæ appear. 7. When the granulations are pale red, the granules indistinctly developed and irregular, and the purulent secretion profuse, but the swelling of the eyelids soft, the redness of the external skin, and the photophobia and spasms slight, the sclerotic white, and the cornea clear, and if the child can open the eyelids, cauterization with nitrate of silver in substance, and cold fomentations to prevent inflammatory reaction, have proved of great utility. A single sudden washing out is better than several dabbings,

or the application of a brush to any single part of the eyelids. Immediately after cauterization, oil must be applied to the lids. If the fungosities on the conjunctiva appear fleshy, so that large masses of them project when the upper eyelid is everted, they must be excised. After this, cauterization is sometimes necessary, to overcome the fungous growths. 8. The ulcers of the cornea must be variously treated, according to circumstances. If, in severe cases of ophthalmia, there was rapidly produced opacity of the cornea, and ulceration, antiphlogistic and emollient remedies were found more useful than stimulants and astringents. Ulcers of this kind were transparent, had sharply defined edges, and penetrated rapidly, before they had extended much. But if they had a dull whitish ground, with irregular edges, and if the surrounding cornea had a pannous opacity, with, however, indistinct inflammatory symptoms, the solution of nitrate of silver was found very useful. The use of *lapis divinus*, sulphate of zinc, and sulphate of copper, with tincture of opium, was also successful, though in a less degree. The application of calomel in powder appeared of no advantage. 9. The treatment of keratomalacia was generally unsuccessful, as soon as the lamellæ of the cornea were implicated, and the disease had attacked more important parts. At the commencement the evil was guarded against by antiphlogistic treatment, while this was still indicated, with frictions of grey ointment, and calomel internally. But if the softening had extended much, especially in weakly children, applications of *lapis divinus*, with tincture of opium, appeared to answer best, with the internal use of aqua oxymuriatica, especially when aphthæ were present. In several cases of incipient softening, Dr. Fröbelius employed the aqua oxymuriatica, without any other external means than dropping in oil, with the most happy results. 10. The iris, when prolapsed, was cauterized, and belladonna was applied several times to dilate the pupil. Dr. Frobelius considers a timely use of the latter remedy as likely to prove of the greatest service in preventing greater injury to the eye. All cases of staphyloma which were forming, were cauterized. 11. The internal treatment was regulated by the condition of each individual child. In plethoric children, with a very red countenance, and considerable ophthalmia, abstraction of blood, and the internal use of castor-oil, were employed. When the biliary secretion was impeded, and the bowels were scantily moved, calomel was given in doses of half a grain once or twice daily. In mild cases of aphthæ, borax was applied with a brush, and rhubarb with magnesia in fennel water, administered internally. In very considerable diphtheritis of the mouth, the aqua oxymuriatica was applied externally with a brush, and was also administered in teaspoonful doses three times daily, in some mucilaginous decoction.

ART. 74.—*Case of Artificial Anus, in which Dupuytren's Operation was successfully Performed.* By W. HEYWOOD PAULSON, Esq., Surgeon, Mansfield.

(*Lancet*, May 4th, 1850.)

The author was called, at ten p. m., Nov. 28th, 1849, to Mrs. B—, æt. 65. On his arrival, he found the usual symptoms of strangulated

hernia. The tumour in the groin had existed in its present state for the last forty hours; it was rather tender, the size of an egg, manipulation giving the idea of omentum occupying it. Pulse very quick and small; flushed and anxious countenance; vomiting and hiccup. The patient had noticed a "small lump" in the groin for the last twelve months. The integuments over the tumour were very œdematous. Taxis, the bath, O'Beirne's tube, &c., were in turn tried, and all the urgent symptoms ceased, the tumour being reduced to one third its original size.

Nov. 29th.—Urgent symptoms relieved, but no alvine evacuation, the usual means being adopted.

30th.—The author was not informed until 10 a.m. of the return of the symptoms. The bowels not having been opened, he proceeded at once to operate. The usual incisions were made, the parts being in a state of congestion. On exposure of the sac, the stricture was found at the femoral ring; the sac, when opened, was filled with congested omentum, inclosing a knuckle of intestine. On dividing the stricture, the contents of the intestine returned, but the omentum and intestine being adherent, the parts were left *in situ*. The wound was closed by sutures, and lint and water applied over it. All urgent symptoms ceased, a full opiate was administered, and the patient felt very comfortable. When seen again this evening, she was still quite comfortable, but there had been no motion.

Dec. 1st.—Patient still relieved of urgent symptoms, but no evacuation of the bowels, the usual remedies being in vain adopted. This evening, much the same.

2d.—On removing the lint, fæcal matter appeared in the wound; the sutures were removed, and the parts were found in a sloughing condition.

3d.—Copious discharge of fæces by the opening in the groin, with much relief to the patient; the constricted portion of the intestine had evidently sloughed. Ordered bark and diluted nitric acid, with nutritious diet. Poultices were applied to the wound, and in a few days a large slough, containing omentum and intestine, came away, leaving the parts in a healthy state, and the bowel entirely divided.

19th.—The external wound rapidly cicatrizing, the upper and lower portions of the intestine being visible, the fæces passing through the artificial anus, causing great excoriation in the neighbouring parts, it was thought advisable to perform Dupuytren's operation. Mr. Hurt and the author introduced the *enterotome*, the two ends of the intestine slightly projecting through the wound; the instrument was introduced without difficulty; the blades were now carefully locked and closed, being screwed as tightly as possible. The operation did not occupy three minutes, caused neither much pain nor excitement to the patient; there was no vomiting, but slight pain in the back; she was again put into bed, and a full opiate administered, the handles of the enterotome being supported on a cushion placed on the thigh. Injections of warm water, in order to keep the lower portion of the bowel in healthy action, were daily continued, and a broth diet ordered.

She continued to go on favorably until the 26th, when the

enterotome came away, bringing within its blades four inches of intestine. The external wound continues to cicatrize, some fæcal matter having already passed per anum, but still principally by the wound.

28th.—A large hardened mass of fæcal matter came by the rectum to-day.

29th.—The injections this day were tinged with fæces. The patient had to-day a plentiful and natural evacuation from the bowels. The wound is daily becoming less.

From this period the motions have passed naturally, with free discharge also from the wound. Some weeks ago, the edges of the wound were pared, and brought together by the twisted suture, but without any benefit. Nitric acid was then applied to the exposed surfaces of the intestine, and acted with complete success.

The wound is now entirely closed, with the exception of a very minute fistulous opening, through which, occasionally, a little mucus escapes, and this is daily decreasing. The patient now wears a truss, is quite restored to her usual health, and has resumed her domestic duties.

Art. 75.—*Imperforation of the Rectum—Operation—Cure.*

M. Denonvilliers presented an infant upon whom he had operated successfully. The child (a male) was taken to him three hours after its birth. The genitals were divided into two distinct lobes by a vertical line: these lobes, which contained each a testicle, resembled enlarged labia. The glans, devoid of prepuce, was situated at the superior part of the fissure. The raphé was displaced towards the left side. The situation of the anus was occupied by a depression presenting cutaneous folds converging to the centre, and which, when the child cried, showed the action of a sphincter. A minute orifice, whence exuded apparently sebaceous matter, existed a little to the right of the depression. There was no protrusion, as of meconium, beneath the depressed integuments. M. Denonvilliers made an incision through the situation of the anus, and with some difficulty found the rectum, which terminated at a short distance above the seat of the depression, and was displaced towards the right. When cut into, no meconium at first escaped; but, by the use of an enema, a considerable quantity, in a hardened condition, was removed. The operation was completely successful in establishing the functions of the intestine and anus.

Bull. de l'Acad.

Art. 76.—*Ulcer of the Leg: Internal Use of Turpentine.*

Mr. Hancock, some years ago, made some observations on the treatment of obstinate ulcers by turpentine. The following case illustrates his practice:

E. B—, æt. 20, unmarried, a laundress. General health delicate; has never menstruated, but has vicarious vomiting. A year and a half since grazed her ankle, from which a wound resulted. When admitted

there was an ulcer five inches broad extended completely round the leg, the edges rounded and callous, and the pain excessive. Her health had suffered extremely; so weak that she had not left her bed for two months; has wasted away, lost appetite, and is subjected to night sweats, with a troublesome cough.

Under these circumstances Mr. Hancock, under whose care she was placed, commenced giving her the cod-liver oil, but it caused so much nausea that it had to be discontinued, and on the second day the turpentine mixture was ordered as follows:

℞ Sp. Terebinth., ʒvj;
Pulv. Acaciæ, ʒvj;
Aq. Menth. Pip. ft., Mist. ℥viij., cap. ℥j ter. die.

At the same time she had a generous diet, with a daily allowance of wine. Linseed-meal poultices were applied to the leg for the first day or two, but afterwards, throughout the case, with water-dressing, and the leg bandaged up to the knee.

Under this treatment she continued to improve daily, the wound became covered with small regular granulations, secreting good healthy pus. Her appetite improved, the menses returned, and with it ceased the expectoration of blood. She was discharged, with the leg quite healed, three months after admission.

Medical Times, July 6, 1850.

Art. 77.—*Treatment of Encysted Hydrocele of the Cord.*

Mr. Hughes says, that when the disease is met with in infantile life, the treatment is, generally speaking, very simple, seldom requiring, at that period, any operative procedure; for, by the assiduous application of cold, evaporating, and astringent lotions, together with the exhibition of brisk mercurial purgatives, we shall generally succeed in dispelling the tumour through the agency of the absorbents. However, this simple mode of treatment does not always prove successful even in infantile cases; and it is generally inadequate for the cure of the disease when met with in adult life. When the simpler mode of treatment fails, it will, in the great majority of cases, be found that the withdrawal of the fluid by puncturing the tumour, and then applying pressure, so as to bring and keep the opposed surfaces of the sac into close apposition, will most frequently induce a perfect and permanent cure.

In hydrocele of the cord, occurring in adults, we are sometimes called on to inject the cyst with a stimulating fluid after having drawn off its contents, with the view of either exciting sufficient inflammation as to produce obliteration of the sac by adhesive inflammation, or of inducing a healthy balance between the secreting and absorbing vessels of the part.

Incision into the encysted hydrocele of the cord, and dressing the cavity from the bottom so as to excite granulations and obliteration of the sac, have been proposed and practised; but as this method of treatment has been followed by alarming consequences, and as he is at

present in possession of a case which nearly terminated fatally, he does not recommend the operation for adoption.

In a case lately under his care, a perfect cure followed the repeated external application of an alcoholic solution of iodine and hydriodate of potash.

Dublin Medical Press, Oct. 16, 1850.

ART. 78.—*Hydrocele of the Tunica Vaginalis twice treated by Injection without success. Permanently cured by Incision.* By Dr. KNOX.

(*Dublin Medical Press*, June, 1850.)

J. S—, of the constabulary force, applied to Dr. Knox on account of a hydrocele, which had troubled him for several years. He stated that the disease had been twice treated by injection, in the Dublin hospitals. Dr. Knox determined to operate by the old method of incision, which he had seen performed at the Royal Naval Hospital, at Stonehouse, with perfect success, by Sir Stephen Hammick. Having laid open the tunica vaginalis to about the extent of an inch, longitudinally, with the scalpel, and having permitted the serum, which was abundant, to flow off, he snipped off a minute portion of the sac, and placed between the lips of the wound a dossil of lint, to excite such a degree of inflammation as should effectually put an end to the disease. Inflammation soon came on; but by confining the patient to the horizontal position, by low diet, and the application of leeches, it was kept within due bounds; the wound healed up rapidly, and a perfect cure of the hydrocele was the result. At all events, the patient had not the slightest indication of any return of the disease when he ceased to be under Dr. Knox's notice, two years after the operation.

ART. 79.—*New Method of Opening Abscesses.* By M. LERICHE.

(*Revue Méd. Chir.*, Mai, 1850.)

The principal aim of M. Leriche is to open abscesses in such a way as to prevent visible cicatrices. His plan is as follows:

After shaving off any hair which may be on the tumour, the surgeon takes a curved needle, passes through its eye one end of a silk twist, then introduces the needle into the tumour, about a quarter of an inch from the most dependent part, where it must be brought out, bringing the thread with it, which is to be knotted, and allowed to remain, covering all with a poultice. The pus discharges itself gradually along the ligature.

[If M. Leriche had been able to read the English journals, he might have avoided publishing as new, what was some time since recommended by Dr. Darby ('Half-yearly Abstract,' vol. vi, p. 122), and which is no more or less than opening abscesses by seton.]

ART. 80.—*Anæsthetic Effects of intense Cold in Surgical Operations.* By Mr. NUNN.

(*Lancet*, Aug. 31, 1850.)

Mr. Nunn has recently tested the method recommended by Dr, Arnott, of Brighton, which consists in inducing local anæsthesia by the use of refrigerating mixtures. The case was that of a female, who applied to him for the removal of a large crop of venereal warts. These excrescences depended from the whole of the labia minora, and surrounded the clitoris so completely that the meatus could hardly be distinguished. Some were of the size of a fig. Before operating, Mr. Nunn applied little wedge-shaped pieces of ice to the necks of the larger growths, till they became blanched, when he removed them with but little pain or hæmorrhage. To show the advantage of the ice, he removed one excrescence without its use, when the pain was excessive.

ART. 81.—*Malignant Disease of the Tongue—Division of the Lingual Gustatory Nerve.* By JOHN HILTON, Esq., F.R.S.

(*Guy's Hospital Reports*, vol. vii, part i, p. 253.)

A female, æt. 39, was admitted into Guy's Hospital for an ulcer of the tongue. It was at first appearance thought to be due to irritation of teeth, but it did not improve after extraction of the teeth, nor from various local applications. On admission there was a large ragged ulcer, with hard everted edges occupying the left side of the tongue, from the tip to the posterior third. She had profuse discharge of tenacious saliva, with intense pain on attempting to eat. There was a gland in the neck somewhat enlarged.

It was Mr. Hilton's intention to remove the disease by excision, but in order to render any operation painless, he determined to divide the lingual gustatory nerve, thus cutting off communication with the brain.

The patient being placed in a favorable position, and the tongue drawn forward by an assistant, Mr. Hilton divided the mucous membrane and submucous tissue vertically, for three quarters of an inch, opposite the molar teeth, over the hyoglossus muscle, and across the upper portion of the sublingual gland.

The operation was much impeded by venous bleeding, but the nerve was exposed and divided. Immediately all sensation was lost in the ulcer, and the anterior portion of the tongue. There was a good deal of pain after the operation on the left side of the face, but leeches and fomentations subdued it. The day after, the profuse salivation had subsided, and food could be taken without pain. Considerable portions of the disease were subsequently removed without pain by ligature, but it was impossible to include the whole mass. Exactly one month from the date of the division of the nerve, she began to feel again, the saliva increased, and the ulcer again became painful. As the disease extended, nothing further was done.

The after history of the case, given by Mr. George Rose, of Yarmouth, is to the effect, that the cervical glands became extensively

involved, that the tongue was totally invaded by the disease, became œdematous; that the pains were agonising, and that, as was inevitable, death speedily came to her relief.

Mr. Hilton proposes the question whether the division of the nerve may not be advisable in similar cases, as a palliative.

Art. 82.—*Remarkable Case of Hare Lip, with Operation.* By W. Fergusson, Esq.

(Medical Times.)

The patient was a little girl, æt. 7, lively and intelligent. The deformity, which is exhibited in the subjoined cuts, consisted of an immense chasm, extending on each side right through the lip, nose, and hard palate, and in addition, there was such a great and unusual projection of the bony palate,— as it were, isolated from the other

portions of bone,—that the skin covering this prominence was directly continuous with that of the tip of the nose; a tooth was also projecting forward from this portion of the palate. The consequence was, that the poor little creature presented a fearfully unsightly object; so much so, in fact, that she was kept almost in seclusion; no one but her own family were in the habit of seeing her, and if she ever went out her features were concealed by a thick veil.

The child, when six weeks old, had been taken to a late eminent surgeon, who, at that period, recommended some operation, but the

infant was too weak to undergo it. Subsequently, at a later period, when the patient was three years old, an eminent accoucheur was consulted, who advised the parents strongly not to have any operation attempted. Nothing, therefore, was done until the beginning of the present year, when Dr. M'William was consulted about the case, and he recommended the child to be brought to Mr. Fergusson. After examining the condition of the parts, that gentleman at once determined to attempt to remedy this frightful deformity by an operation, which he performed in the following way, and which has fortunately proved to be perfectly successful :—

The child was first placed fully under the influence of chloroform ; and Mr. Fergusson commenced by dissecting up the skin covering the prominent bony palate. After this had been efficiently done, the projection itself was entirely removed by a pair of bone forceps. The edges of the integument, which had been dissected up, were now pared. After this, the edges of the fissured lip were carefully pared, and they were accurately brought into contact and retained by hare-lip pins. The fold of integument which had been taken off from the projecting palate, and which was adhering to the lip of the nose, was now brought down, and its apex was inserted into the divergent space at the base of the cleft lip, and another needle was run through all, so as to keep the parts in contract, and form a septum nasi. The result of the operation was most gratifying.

The next cut exhibits the features in profile.

Art. 83.—*Treatment of Foreign Bodies in the Œsophagus.* By J. Adams, Esq.

(*Medical Gazette*, April 5, 1850.)

[The patient upon whose case the following remarks were made had been unsuccessfully probanged by a surgeon in consequence of a piece of goose becoming impacted in his œsophagus. Mr. Adams was more successful, and removed a large portion of the scapula of the animali. Mr. Adams's comments were as follow:]

The importance of these cases is not entirely disproportionate to the alarm and anxiety felt by the patient or his friends, and in no class of cases are the beneficial results of prompt surgical treatment more immediately displayed. In the first place, we should never omit, under the most urgent circumstances, to make a few brief inquiries as to the nature of the substance supposed to be impacted; and, should it be a portion of meat, or any other non-irritating and digestible substance, the best practice would be to push it on forcibly into the stomach by means of a probang (or any instrument of the like nature we may have at hand).

I believe that all sharp or pointed bodies are most safely treated by retraction; and no more convenient or appropriate instrument can be contrived for the purpose than that which I employed. It is a solid rod of whalebone, about twenty-two inches long, and three-quarters of an inch in circumference in the centre, gradually tapering, however, to a point at each extremity; at one end is fixed a round piece of sponge, and at the other end a piece of watch-spring three inches in length, which is covered with silk, and connected securely to a flat blunt button-like hook, having a hole in the centre, for the attachment of some loops of silk, which are often found of great additional assistance in entangling projecting points of any foreign body; but it may so happen that, on account of some peculiar position which it may occupy in the œsophagus, the flat hook may pass by it repeatedly; still, it is impossible that any additional mischief can be effected by the employment of the instrument, which has often, I fear, been the case when the ball probang is invariably used; and, should repeated attempts with this instrument prove ineffectual, the surgeon must not be discouraged. An emetic of speedy operation has been by some employed with success, from the effects of which we may hope either that the foreign body will be completely expelled, or at any rate that it will have become sufficiently displaced for the hook to entangle it on a second attempt being made, and this, I believe, will generally obtain.

Let us briefly consider what are the dangers likely to arise from the forcible propulsion of foreign bodies onwards, if hard and irritating substances. The mucous membrane and muscular fibres of the pharynx or œsophagus may be extensively lacerated, and this accident would be far more liable to occur should any narrow substance be the offending matter; because, as the œsophagus would not be equally distended at the seat of obstruction, the mucous membrane would collapse above it, and would thus very easily become lacerated by the point

of the probang. These lacerations may heal and no further mischief arise, or acute inflammatory action may supervene, terminating in diffused or circumscribed suppuration in the cellular tissue around, than which you cannot possibly imagine any cases more distressing to the patient, or perplexing to the surgeon. I well remember two cases which have occurred to me at this hospital during the past three years, a description of which may serve to impress the symptoms and treatment more forcibly on your attention. In both cases the impacted body was one of the small hard bones of the plaice, and in both the distress was extreme. The first case was brought to me as an out-patient, and occurred in a woman, who, it was stated, had swallowed one of these bones three days before. She experienced, when I saw her, the greatest difficulty in swallowing, and was tormented during the attempt with suffocative fits of spasm of the laryngeal muscles : the back part of the pharynx and fauces were very much swollen and congested, but there was no external evidence of any suppuration beyond an indistinct fulness on the left side of the neck, accompanied with tenderness on pressure. Leeches and fomentations were subsequently applied, and mercury also was given, at the same time that nourishing broths were administered ; but, after remaining some days in the hospital, suffering the greatest agony, she died from pure exhaustion. A post-mortem examination revealed the true cause of her distressing symptoms. A circumscribed post-pharyngeal abscess existed, which had pressed forwards to the back of the larynx and trachea.

The second case to which I alluded occurred about two months subsequently, also in a woman of previously delicate health. She had swallowed the bone only two days before, since which period gradually increasing difficulty of deglutition had supervened ; but her symptoms on admission into the hospital were not so urgent as in the former case. No bone could be felt in the course of the tube with the hook. Leeches were applied to the outside of the neck, but no relief was obtained ; on the contrary, the symptoms rapidly increased in severity. With the unfortunate result of the last case in my mind, I was induced most carefully to examine the back part of the pharynx, and discovered a considerable fulness in that region. I did not hesitate to plunge into it a sheathed tonsil lancet, and a quantity of most fetid pus was evacuated. I need not say, that the relief was almost instantaneous. Gargles of chloride of lime were subsequently used ; and, by the aid of nourishing diet and tonic medicines, she went on very well for a short time. In a few days, however, more unfavorable symptoms became developed, which were found to arise from the orifice of the abcess being closed, and a fresh accumulation of matter having collected behind. This was soon remedied by the introduction of a probe, which gave vent to almost as great a quantity of pus as was first evacuted by puncture. Nothing subsequently occurred to retard the favorable progress of the case, the orifice being daily kept patent by the introduction of caustic. I may remark, as one characteristic of suppuration occurring in this locality, that the pus confined in the abcesses had a most noisome sickly odour, most like that resulting from suppuration connected with necrosed bone than anything else I have ever experienced. I have successfully removed a common

pin from near the cardiac orifice of the stomach by means of this blunt hook. A surgeon to whom I was showing the instrument, and describing its employment in the above cases, immediately procured one for his own private use, and, strange to say, he had only possessed it a week when he was called on suddenly to test its applicability in the case of a boy who had attempted to swallow a counterfeit half-crown to avoid detection by the police, but which had become impacted in the œsophagus, and produced imminent danger of suffocation. The hook fulfilled its duty, and the ends of justice were thus aided.

Let me, therefore, in conclusion, strongly advise you against the indiscriminate use of the probang in cases of impacted foreign bodies in the œsophagus. An instance is now fresh in my memory where one of the most distinguished legislators of the day lost his life in consequence of the impaction of a bone in the gullet, and in which case a surgeon had made forcible use of the probang unsuccessfully. When soft substances, as a piece of meat, are lodged in this canal, then the probang is clearly indicated.

Art. 84.—*On the Operation of Laryngotomy.*

By John Erichsen, Esq. f.r.c.s.

(*Lancet*, May 4, 1850.)

[The author reports a case of membranous croup in a child æt. 5 years, for the relief of which it was necessary to open the larynx. As a practical commentary he presents us with the following general observations on the operation.]

In children tracheotomy is almost always a tedious operation, the exposure of the trachea requiring very careful dissection, and much time being often lost before it is punctured owing to the free hæmorrhage which usually occurs.

Laryngotomy, on the other hand, can be performed with but little delay. The crico-thyroid membrane can be quickly exposed, no parts of importance lying in the line of incision; and the bleeding is in general but trifling, not nearly so abundant as when the incision is made more towards the root of the neck, and very soon ceases sufficiently to allow an opening to be made into the air-tube. Hence, when time is of importance, as it almost invariably is in those cases of croup in children that require operation, I should prefer the high to the low operation.

It is a practice with some surgeons not to open the windpipe until all, or nearly all, the bleeding has ceased. But it appears to me that in this way much valuable time may be consumed, and the patient be exhausted by a tedious and prolonged operation, and by the loss of an unnecessarily large quantity of blood. The hæmorrhage in these operations is almost entirely of a venous character, and is, in a great measure, dependent on the distention of the veins of the neck that occurs in asphyxia, as the result of the accumulation of blood in the right cavities of the heart, consequent upon the obstructed circulation through the lungs; and the bleeding will continue so long as that obstruction remains unremoved. But as the respiratory process is re-

established, this obstruction to the pulmonic circulation diminishes, the right cardiac cavities become unloaded, the venous turgescence of the neck subsides, and the hæmorrhage proportionately lessens. This I have repeatedly found in asphyxia artificially induced in animals, and have more than once seen it in the human subject, in cases in which it has become necessary to open the windpipe at once, without waiting to arrest hæmorrhage. Hence, I think that, except in those cases in which an arterial twig or a large venous trunk has been wounded, and which must of course be secured, the occurrence of bleeding, though tolerably smart, need not deter the surgeon from opening the windpipe, as the relief afforded to respiration will induce a corresponding diminution in the venous turgescence of the neck, and in the consequent flow of blood from the wound.

Trachea-tubes should be of such a caliber throughout as to admit of respiration being carried on through them without any effort on the part of the patient. Many of those that are to be met with in the instrument-makers' shops, though very wide at the mouth, are far too narrow and contracted at the lower aperture to allow a free and unimpeded passage for the air of respiration, being made very conical, in order to admit of easy introduction, and to occlude completely the opening in the windpipe, so as to prevent the entry of any blood by the side of the tube. The disadvantage attending this mode of construction may in a great degree be remedied by having a longitudinal opening, like the large eye of a catheter, cut in the side of the tube, immediately above the inferior aperture.

One great difficulty that the surgeon has to meet in cases of tracheotomy or of laryngotomy is to keep the tube from being clogged and obstructed by mucus. It is usually stated that the tube may be kept clear by the occasional introduction of a feather, of a piece of sponge fixed to a stick, or of a bit of lint wrapped round a probe. In this way it is true that the frothy or spumous mucus that collects in the tube may be readily enough cleared away ; but this simple means will in very many cases be found to be quite ineffectual in removing another kind of mucus that in certain conditions rapidly collects, to a considerable extent, within the tube. On examining a trachea-tube that has been worn for but a few hours, it will be found that its interior has become gradually lined by a coating of dry, gummy, and very tenacious mucus, which is so firmly adherent to the metal as to render it necessary, before the tube can be properly cleaned, to detach this lining by means of a penknife or pointed probe, or, what is better, by pouring boiling water through the tube. This tenacious mucus collecting, as it does, in largest quantity at the inferior aperture and at the curve of the trachea-tube, may block up in caliber to a very great and dangerous extent, whilst the mouth of the tube appears to be perfectly pervious and free; and though feathers and pieces of stick, armed with sponge or lint, have been introduced from time to time; but these, passing over this dry mucus, are quite unable to detach it from the side of the tube, and merely bring away sputa and frothy mucus.

A very simple and effectual means has been devised, by Mr. Obre, of Lisson-grove, to remedy this inconvenience, which that gentleman

has allowed me to mention. It consists in the trachea-tube being made of uniform caliber throughout, and having an interior tube accurately fitted to it, and projecting about an eighth of an inch beyond the lower extremity of the outer tube. It is in the projection of the internal tube beyond the lower end of the external one that the great utility of this contrivance consists. If the two tubes are of the same length, or still more, if the innermost tube be the shorter, a plug of mucus may be left at the end of the outer canula, on the withdrawal of the inner tube. But if this be the longer of the two, the end of the outer tube will be effectually cleared every time it is withdrawn, which may be done as often as any mucus collects, without in the slightest degree disturbing the patient. The two tubes are fixed by means of a button attached to the edge of the outer one. I have found it convenient to have the ordinary set of three trachea-tubes made in this way, the internal tube being the longest, the middle next in length, and the external the shortest. By this arrangement the smaller trachea-tube is made to serve the purpose of the internal canula. When used for laryngotomy these tubes may conveniently be curved on the flat, their longest diameter being lateral, instead of antero-posterior, thus adapting themselves to the form of the aperture in the crico-thyroid membrane.

SECT. IV.—RARE SURGICAL CASES.

Art. 85.—*Bubo perforating the Abdomen—Peritonitis.* By Dr. Lente.

(*New York Journal of Medicine*, Sept. 1850.)

P. E—, æt. 22, machinist, was admitted May 30th, 1850, with a suppurating bubo in the left groin, which is discharging an ill-conditioned pus profusely from a spontaneous opening. The bubo first appeared three weeks ago, since which time the patient has been working at his laborious occupation, which requires him to sit, and in which a violent strain is brought upon the abdominal muscles; he has had no treatment. The seat of the bubo is above Poupart's ligament, but much nearer the anterior superior spine of the ilium than usual; in fact, the undermining of the integument extends beyond this point; there is no undermining of integument below the opening, but the depth is greater here than at any other point, and there is a circumscribed livid discoloration of the surface, the latter being of a florid healthy colour elsewhere. (This was observed subsequently.) Five months ago patient had chancre, followed by a bubo situated an inch or two below the present, where there is now the cicatrix of the opening which was made to give exit to the matter; has had no chancre since, and no purulent discharge from the urethra. The patient is a man of considerable respectability, and of tolerably steady habits; general health fair.

Treatment.—Poultices and low diet. The undermined enlargement pared off with scissors, and the ulcer to be dressed with unguent. balsam : peruviani. The patient continued to do well for a week, but about 10 p.m. of June 8th, after vomiting, he was found in a state of great prostration, with sunken countenance, cold skin, small, rapid pulse ; *no pain on pressure* on the abdomen. After a period of eighteen hours this symptom, however, appeared, and the vomiting became unmanageable. Leeches were applied to the epigastrium, and calomel and opium exhibited without benefit, and the patient died at 7 a.m. of the 10th.

Autopsy, sixteen hours after death.—An examination was only allowed of the abdomen. Before making an incision, examined the bubo with a probe, which passed into the cavity of the abdomen its whole length without difficulty. Upon laying open the latter, a quantity of serum, rendered turbid by lymph, gushed out, and the intestines throughout were seen to be glued together by recent exudation of lymph, and the vessels of the peritoneum generally injected. Upon tracing the intestine along towards the bubo, found the large bowel, just before it gives place to the sigmoid flexure, firmly glued to the internal wall of the abdomen, at a point corresponding to the situation of the bubo, by fibrinous bands, to the extent of an inch or more ; these were evidently the product of recent inflammation, but admitted of considerable traction without giving way ; the intestine was now slit open, and the ulceration found not to have communicated with it. The opening into the peritoneal cavity was found to be near the left sacro-iliac synchondrosis, close to the bifurcation of the common iliac artery, and was about one third of an inch in diameter, being of a circular form ; pus was seen oozing from it into the peritoneal cavity. Other abdominal organs, except those mentioned, were found to be healthy.

Remarks.—This is probably the only case of perforation of the abdomen by a bubo on record ; and this fact prevented a suspicion of the actual state of the case until after death, and also an ante-mortem examination with the probe, which would have revealed the origin of the obstinate symptoms above enumerated. An attempt was made by nature in this case, such as she often makes in similar difficulties, to avert a fatal issue by causing the opening to take place into the cavity of the large intestine instead of into that of the peritoneum ; for this purpose, the former was glued to the latter at the point where the communication should have taken place, but unfortunately, the matter took a longer course, and opened beyond the adhesion.

ART. 86.—*Case in which the Urachus remained Open, and a Ring-shaped Vesical Calculus formed on a Hair was Extracted through the Umbilicus.* By THOMAS PAGET, F.R.C.S.

(*Transactions of the Medico-Chirurgical Society*, vol. xxxiii, p. 293, 1850)

John Conquest, iron-founder, æt. 40, has for a year suffered from vesical symptoms, which led to the discovery of a calculus. He mentions that occasionally urine escapes at the naval, which has been pervious from birth. On a subsequent examination, it was found that

the point of a catheter introduced into the bladder could be made to project from the umbilicus, and it appeared probable to Mr. Paget that the stone, which was small, might pass that way.

To effect this, the bladder was distended with water, and the umbilicus plugged, in order that by placing the patient with his head lower than the pelvis, the stone might run out with the fluid. Before trying this, however, Mr. Paget passed his finger into the umbilical opening, and was fortunate enough to catch the stone within its circle.

The stone, on inspection, was seen to consist of a ring of lithic acid, with a fine hair for its axis, one end of which projected visibly. The calculus had the diameter of a quill. No attempt was made to relieve the umbilical deficiency.

ART. 87.—*Amputation of both Superior Maxillary Bones.*

M. Maisonneuve has performed this operation on a man, æt. 69, suffering under cancer of the bones. The same operation had been successfully performed on a young girl affected with necrosis from the vapour of phosphorus. M. Maisonneuve detailed the steps of the operation, and its result, in the first case. A vertical incision was made in the middle line, dividing the nose from its root, and terminating at the upper lip ; a transverse incision was then made from the internal angle of the right to that of the left eye ; two large quadrilateral flaps were thus left to be dissected down, following the edge of the eyelid to the external angle on both sides : when these were everted the disease was fully exposed. A chain saw was passed through the spheno-maxillary fissure ; another was passed through the root of the nose, traversing the os unguis on both sides. In this manner the bones were detached laterally and superiorly. Posteriorly, the velum palati, which was healthy, was detached with a bistoury ; then, by the help of Liston's forceps, the entire mass of the bones was detached. The result of the operation at first promised favorably, but in a few days the patient died.

Reported in *Medical Gazette*, Aug. 7, 1850.

ART. 88.—*Dislocation of Femur reduced on sixty-eighth Day, by Jarvis's Surgical Adjuster.* By Dr. JOSIAH CROSBY, of Manchester, U. S.

On the 16th of January, 1849, Mr. P—, æt. 56, muscular, weighing about 180 pounds, of intemperate habits, was thrown from a sleigh, and dislocated his left hip. Six weeks passed before the nature of the injury was understood, and more than three weeks afterwards before any attempt was made to reduce it.

On the sixty-eighth day of the dislocation the author saw the patient for the first time—found him lying in bed with all the diagnostic signs of dislocation of the head of the femur upwards and backwards ; limb below the natural temperature, purple, œdematous, and shortened from three to four inches. Although the case seemed almost hopeless, it was agreed that an effort at reduction should be made, and *Jarvis's*

Adjuster was accordingly applied. Before extension was commenced, an attempt was made to bring the patient under the influence of chloroform, but it was soon abandoned on account of violent spasms which were produced by it, and the operation was done without the aid of this powerful agent. The extension was continued, gradually increasing the power, for nearly twenty-four hours, when by a little rotation of the limb, the head of the bone was brought into the socket with a snap audible to the bystanders.

The hand of an assistant was placed on the trochanter while flexion and slight rotation were given to the limb, to see if the leg would remain at full length and in the right position. Everything proving satisfactory, the patient was laid in bed, and a bandage applied about the hips to guard against accidents from motion.

Dr. C. remarked that in the Report on Surgery to the National Medical Association for 1849, the chairman of that committee gives an unfavorable opinion for himself and Prof. Pope of the St. Louis University, in regard to the "Adjuster," but that no statistics were given on which this opinion is founded. He was of opinion that an instrument of so much power and of so varied application deserves a fair trial, and that by this test its character should be fixed.

PART III.

MIDWIFERY, AND DISEASES OF WOMEN AND CHILDREN.

SECT. I.—MIDWIFERY AND DISEASES OF WOMEN.

ART. 89.—*On the Treatment of Cerebral Hysteria, and of Moral Insanity in Women, by Electro-galvanism.* By Dr. LAYCOCK.

(*Medical Times*, July 20, 1850.)

There is a disorder of the feelings, sentiments, and affections, which, when intense and permanent, constitutes moral insanity, but in a minor degree may be termed cerebral hysteria, and to which women with certain mental and corporeal characteristics are specially liable. It presents itself under three forms, of exaltation, depression, and perversion—the latter a state often compounded of the two former. It depends on a functional disturbance of the cerebrum, but primarily and principally of that portion which is the organ of the instincts and emotions,—for there are no delusions or hallucinations, and no disorder of the intellect, except in the advanced stage, when the functional disorder has become chronic, and mania, melancholia, or imbecility, has supervened. In its mildest forms, the disease is one of the most common to which the sex is liable, and, as constituting the primary or incubation stage of moral insanity, it is one of the most distressing. It is also, when fully established, to be classed amongst the most incurable; for, although the intellect may be sufficiently restored to render the restraint of an asylum unnecessary, there often remains a permanent change in the character of the individual of a very distressing kind, because it gives the appearance of moral depravity, and too often really induces it. The gentle, truthful, and self-denying woman, has unaccountably become cunning, quarrelsome, selfish; piety has degenerated into hypocrisy, or even vice; and there is no regard for appearances, or for the feelings or interests of others, except in so far as they may minister to the vanity or selfishness of the patient. In short, there is such a complete perversion of the character, that, when compared with the natural disposition and feelings, it can only be considered as a state of disease, and the result of previous changes in the encephalon.

The remedy the author recommends as prophylactic and curative in cases of this kind, is the persevering and systematic application of electro-galvanism to the abdominal and pelvic regions in combination with other means; but, previously to mentioning the details of treatment, he gives a short historical sketch. The affection (if we consider the whole series of phenomena as constituting one disease) may be

considered under three or four successive phases. There are—1. What may be termed the etiological stage; the stage of causation. 2. The stage of incubation. 3. The stage of manifest cerebral disorder, showing itself in various forms and degrees of mental aberration. The etiological stage, or that in which the causes of the disease are in operation, is characterised by a general derangement of the health of no very specific character, and with little, if any, observable change in the feelings or temper. There are unusual languor, irregular appetite, epigastric pain, and other symptoms of indigestion; constipation, together with irregularity in the uterine functions, either as regards the recurrence of the periods or the quantity or quality of the menstrual discharge. As the disease advances, all these symptoms are aggravated; the gastric symptoms become more urgent; the urinary secretion is irregular, and the bowels are more constipated; there is dysmenorrhœa or amenorrhœa; a dull aching pain is probably felt at the lower half of the sacrum, with pains in the hips, weary aching of the legs, and more or less œdema of the feet and ankles. A manifest alteration may now be observed in the patient; the complexion is muddy or sallow, the face pinched, and the person generally much thinner. The countenance exhibits a settled expression of anxiety, and the usual cheerfulness is changed for habitual gloom. The *stage of incubation* has commenced, and as it advances, the cerebral functions begin to be disordered permanently. The patient becomes fickle, restless, impatient; is often depressed, often excited to anger by trifles, and is alternately dissatisfied with herself and those around her. She can scarcely say what ails her; she, perhaps, carefully conceals or misleads as to some of her symptoms; and their variety and apparent incongruity often puzzle her medical adviser as well as her friends. Much is attributed to bad temper, or to the indulgence of foolish caprices; much to "biliousness" or "indigestion," or the obstinate constipation of the bowels; and if there be spinal tenderness and hysterical symptoms, it is apt to be considered simply as a case of hysteria or spinal irritation.

Up to this point the affection is hardly beyond what was formerly termed "the vapours," and it may not advance beyond this point; if, however, it be progressive, more decided symptoms show themselves, the temper is more easily roused, more unreasonable, and more unmanageable; the patient manifests a selfish cunning and deceitfulness altogether foreign to her character, and surprises her friends by unusual mental and bodily activity, while several of the earlier symptoms may even disappear altogether; but the greater activity is only the restlessness and fickleness of the preceding stage more fully developed, and at last it is accompanied by traits of character which seriously alarm the friends of the patient. She will desire to do or to possess everything she sees, or sees done, or even thinks of. She will write much, read every variety of book, and undertake every variety of work, and change her mind a hundred times a day. At last she appears to have lost all power of decision, and a state of mind comes on which may be termed volitional chorea; for, just as in common chorea, the muscles respond indeterminately to the will, so in this kind of case they will respond indeterminately to the ideas, and acts of the will

follow upon any passing impression on the mind. Thus, if the patient has resolved to read French, the mention of the piano or of music in conversation will determine her to give up the French for a little music; but she has hardly seated herself at the instrument before she determines to draw for awhile. If left to herself, she seldom, if ever, completes her purpose; and sometimes the ideas that arise in the mind are so unconnected, that a character of great eccentricity, if not of actual insanity, is stamped upon her actions.

Each case will, of course, present peculiarities according to the education, habits, and constitution of the individual, and accordingly as certain instincts and classes of ideas predominate. It is to be observed, however, that in this stage there are no illusions or hallucinations, as in true mania, although the disorder of volition described may be so aggravated as to assume the character of *impulsive insanity*, in which case the will is so subjected to any passing idea, that actions are performed from a sudden impulse or desire which are truly insane in their character. It is not always, however, that the cerebral disorder, on which this absolute subjection of the will to impulse depends, is ushered in by premonitory symptoms, especially when it appears in very young or in parturient females; and, even when premonitory symptoms really exist, the singular ingenuity and cunning with which the patient explains away or conceals her foibles and follies, impose upon the inexperienced and disarm suspicion, until some very strange or even criminal action puts the case in its true light. The transition from this state, if the disease go on unchecked, to confirmed insanity, is only a question of time; but the peculiar form of mental derangement will differ, according to circumstances we need not here enumerate, and may be mania, melancholia, hypochondriasis, or only monomania.

As the form which the disease assumes in its successive stages is never alike in any two individuals, so its causes vary. Primarily, in all in whom the cerebrum is decidedly involved, there is an existing predisposition to mental disease or cerebral disorder, either hereditary or acquired. Then functional or structural disease of various viscera has a direct incident excitor action on corresponding portions of the cerebrum and cerebro-spinal axis, and so induces local excitement and disorder therein. Thirdly, visceral disease leads to a morbid condition of the blood, so that the nervous system is injuriously acted upon from another quarter, and a general *neuræmic* condition is induced. This condition the author has specially considered in his work on the 'Nervous Diseases of Women,' and its relations are very important and extensive. He does not propose to discuss these etiological questions at length, as we have only to trace such a general outline as will enable the reader to recognise the affection and understand the *modus operandi* of the remedies.

Those who have paid any special attention to mental disorders, must have remarked how frequently diseases of the viscera are incident exciting causes of insanity. It is to be remembered, however, that slight changes in the temper and the feelings, arising from similar causes, are also dependent upon functional disturbance within the cranium, and belong, etiologically and pathologically, although not

nosologically, to the class of cerebral diseases involving the mind. Disease of the heart frequently induces a most painful irritability of temper, or a morbid depression; disease of the stomach and liver will cause hypochondriacal feelings, and a distressing sense of anxiety about the future. Irritation of the intestinal canal will induce various forms of cerebral irritation, from epilepsy to mania; while uterine and ovarian irritation, which, in its slightest forms—as when connected with the monthly period in females—almost always exercise more or less influence on the temper and feelings at that time; operate also, indirectly, on the nervous system, by impairing the functions of the *kidneys*, and so rendering the elimination of the urinary salts from the blood imperfect. It is, however, to the direct and permanent morbid action of the ovaria on the cerebrum, that the change in the instincts and feelings is due, which we have described, and which invests the patient's actions with an unfeminine character, perverting all the feelings and sentiments connected with the sexual functions, either directly or indirectly, and so exciting insane cunning, destructiveness, infanticidal impulses, morbid appetites, &c. It is not possible always to say in what this morbid condition of the ovaria consists, nor, in many cases, how it arises, although, in a large proportion, it is evidently connected with displacement, congestion, or ulceration of the uterus or its cervix. Whatever may be its exact nature, when thus complicated with uterine disease, it draws the kidneys, stomach, and intestinal canal into the chain of functional disorder, and these reacting upon the cerebrum and cerebro-spinal axis, and the latter on the former, we have the whole series of phenomena developed in its various modifications, according to the modifying influences of individual predisposition.

Hence it is of primary importance that the utero-ovarian disease be checked, and that the gastro-intestinal functions be restored to a healthy condition; for, unless these indications be fulfilled, there is little hope that the cerebral or cerebro-spinal disorder thence resulting will be cured, or even palliated. The various remedies which are in ordinary use for these purposes,—as hip- and foot-baths, leeches, and counter-irritants to the spine, chalybeates, purgatives, enemata, sea-bathing, &c.,—are uncertain in their results, for, in many cases, we cannot even check the constantly increasing tendency to constipation. Now, it is as an aperient and emmenagogue that electro-galvanism, used in the mode mentioned, is most beneficial in these cases; and, without entering into any theory as to its *modus operandi*, the author states that it is the most efficient remedy for this purpose that he is acquainted with. In proportion as it fulfils the indications of cure, by restoring the due action of the intestinal canal, and of the kidneys and ovaria, the morbid cerebral phenomena disappear, and the mind returns to its natural state. In one case under the author's care, in which there was the morbid condition of the will, he has described in a most marked form, and a concomitant painful alteration of the character, the remedy was eminently successful; in three weeks the bowels were moved daily without purgatives or enemata, although these had been necessary for three or four years previously; the patient gained considerably in weight, improved daily in mind, and in

four months the menses reappeared, after having been wholly suspended for *five years*. The latter result was the more remarkable, inasmuch as the patient presented certain external characteristics which usually indicate atrophy of the ovaria.

Although the use of electro-galvanism as an emmenagogue is no new thing in medicine, it is to Dr. Cumming, of Edinburgh, that we are indebted for much valuable, and, we think, *new* information, as to the class of cases, and the mode in which it may be most advantageously applied. We would particularly refer the reader to Dr. Cumming's paper 'On the Use of Electro-Galvanism in a peculiar Affection of the Mucous Membrane of the Bowels,' published in the 'London Medical Gazette' for 7th December last, and also to an Appendix to that paper, in the same Journal, for January the 18th last, where he will find ample instructions as to the best mode of applying the remedy, the precautions that should be taken, and the adjuvants that should be administered.* We have reason to hope that Dr. Cumming will shortly make the results of his further experience public; and we are glad to have this opportunity of stating, that his hitherto published experience is amply confirmed by the author's. The author is satisfied that we have, in this method of treatment, a means of curing or alleviating many of the large class of cases (not exactly indicated by Dr. Cumming) of which he has given a short notice, some of which are now hopeless inmates of hospitals for the insane, while others, hovering at home on the verge of insanity, are a continual source of domestic misery.

[The author adds one or two points necessary to be observed in the diagnosis of the early stage of this class of affections.]

The gastric derangement is the most distressing, and is characterised by a sense of uneasiness and depression at the epigastrium, accompanied by an undefinable anxiety and restlessness, usually the most intense at an early hour in the morning. The bowels are generally much constipated, the tongue scabrous, or presenting a rough *fissured* appearance, the complexion muddy, the countenance grave, or peevish, or anxious. These symptoms being observed, attention must be directed to the uterine functions; and if leucorrhœa, or symptoms indicative of uterine congestion, displacement, or structural change, or of ovarian irritation, be found to exist, then the gastric or gastro-enteric phenomena must be considered as in etiological relation to the pelvic, and the daily local application of electro-galvanism, in the way pointed out by Dr. Cumming, will be the best remedy. Amongst the adjuvants that should be administered concurrently with its use, tar, in small doses, has been found to be the most effectual,—a remedy that we owe, the author states, to Professor Simpson,—and which is itself an excellent remedy for habitual constipation, without the aid of electro-galvanism.

* See Half-Yearly Abstract, vol. xi, p. 60.

Art. 90.—*On the Treatment of Hysterical Delirium.* By R. B. Todd, M.D., F.R.S.

(*Medical Gazette*, vol. ii, p. 112, 1850.)

This form of delirium and its treatment are thus described:—A hysterical girl begins to form strange fancies; she becomes obstinate and perverse, and it is with great difficulty she can be managed. Perhaps she may refuse food, and conceive a great dislike to some of her relatives. Sometimes we cannot detect any obvious cause for these symptoms, beyond the hysterical state, but in most cases the patients have, in addition, been exposed to some causes of depression. Such is the case with a girl of the name of W——, now in the hospital, who is suffering from this form of delirium. She belongs to the hard-worked and ill-paid class of needle-women who have excited so much interest of late. For some time past she has been sitting at her needle for many hours a day, getting no air nor exercise, and feeding badly. She is a Roman Catholic, and an enthusiast in religion, and has been led by her religious views to practise a considerable amount of asceticism, which, in addition to her privations from poverty, have contributed much to increase her depression. In this girl there was at first no violence, but she was continually sighing, and seemed always in a melancholy mood; sometimes reciting hymns to the Virgin, at others praying fervently, imagining herself in chapel. She frequently spoke of her father and mother, without having any definite notions as to where they were, or seeming to know that one of them was dead. She could seldom be engaged in conversation, and could give no satisfactory account of herself, and she exhibited great reluctance to take food. In addition to the other causes of depression we have mentioned, she has been irregular in her catamenia; and on the last occasion, a few days before she became delirious, she had a very profuse discharge of blood, which weakened her extremely.

Sometimes patients suffering under hysterical delirium are extremely violent and mischievous, and even furious, using the most coarse and even obscene expressions. Often there is great wakefulness, which threatens to exhaust the patient.

In cases of hysterical delirium we generally meet with disturbed uterine functions; the catamenia are affected in some way, being too copious, or perhaps deficient in quantity or altered in quality; the intervals of their recurrence may be very irregular, or many months may pass without the patient having menstruated: sometimes, on the other hand, they recur too frequently. Leucorrhœa is also often present in these cases to an extent which produces extreme weakness. Under such circumstances, when a patient is exposed to privations, or from loss of appetite is unable to take food in sufficient quantity, or receives some severe mental shock, delirium is very apt to show itself. Moreover, young women, and especially those of the hysterical diathesis, are extremely apt to neglect all attention to the action of the bowels, which alone must seriously injure the general nutrition. It is not uncommon for such young women to suffer from a confined state of the bowels for many days, without exciting attention from

them. Thus, with deranged catamenia, confined bowels, irregular habits, capricious appetite, mental anxiety, often ill-regulated thoughts, and in the lower classes inadequate food and over-work, it is no wonder that a depraved nutrition should be produced sufficient to disturb the balance of the nervous system, and the due action of the mind.

In treating a case of hysterical delirium we must set ourselves diligently to discover the causes which have produced the deranged general nutrition upon which the delirium mainly depends. We must relieve constipation, without using violent means calculated to depress. If the catamenial or leucorrhœal discharge be excessive, it must be immediately checked by suitable remedies, among which, the author thinks that the frequent use of cold water by hip-baths is among the best. Careful attention must be paid to improve appetite and to help primary digestion. Hence we shall derive most benefit, generally speaking, from the combination of tonics, mineral acids, and purgatives, and sometimes from the use of chalybeates.

It is of great importance to devise some good means of administering food according to the particular circumstances of each case. As to the use of stimulants, it is difficult to lay down rules of even frequent, much less of general, application: in this part of the treatment our best guide will be derived from the peculiarities of each case: sometimes it is better to give them, and sometimes to withhold them. The state of the digestive organs, the previous habits of the patient, the effects which stimulants produce upon her, will in general afford us great help. To these the author adds the rate of the pulse; a quick pulse, of 110 or upwards, indicating the need of stimulants; a slow pulse, below 90, denoting that they are not necessary. But this must be always borne in remembrance, that starvation will not answer in these cases, nor will antiphlogistic measures; such means always tend to aggravate the delirium.

In the treatment of these cases a great deal is to be done by moral means. Very frequently it is desirable that the patient should be isolated from her friends; by this the author does not mean that she should be sent to a lunatic asylum; on the contrary, in a large number of instances such a course would be injurious to the patient, both at the time and subsequently. We have no more right to send a patient labouring under hysterical delirium into a lunatic establishment, than to place a patient affected with the delirium of erysipelas or of typhus there. We have no good grounds for classing these cases, more especially the more acute ones, with ordinary cases of insanity; and we should be careful to avoid stamping a young woman with the reputation of having been once insane. The delirium in these cases is as much dependent on the disturbed state of nutrition which constitutes the hysterical state, as the peculiar delirium of erysipelas or of typhus depends upon the peculiar fever excited by the respective poisons of those maladies. The patient then, as the author has said, should be isolated from her friends, and be placed under the care of a kind and attentive nurse, who will keep a constant watch over her, attending carefully to her wants, and restraining her by firm but kind influence from doing what is injurious or mischievous.

Mechanical restraint is highly objectionable in the hysterical deli-

rium, and should never be practised unless when there is an absolute necessity for it. It excites opposition, and irritates the temper of the patient often to a very serious extent. We have lately had a good opportunity of observing its injurious effects in the case of the girl before noticed. She had been treated much on the plan which has been already described, with tonics, good diet, and shower-bath; but she had got into the habit of wandering about from ward to ward, and the nurse was unable to control her. I directed her to be kept to her bed, and isolated from the other patients by surrounding the bed by screens. Still she could not be kept quiet; and I then allowed the nurse to tie her feet to the bed. This irritated her very much, and the next day we found her much worse, and her delirium much increased. All restraint was then removed, and since then she has been gradually improving.

The same rules which the author has laid down as to the employment of restraint in cases of delirium tremens, are applicable to the question of using these means in other similar cases. We must be guided by the symptoms which arise in the course of the disease, being always slow to adopt restraint.

ART. 91.—*Fibrous Tumour of the Left Ovarium, Successfully Removed by the Large Abdominal Section.* By Dr. VAN BUREN.

(*New York Journal of Medicine*, March, 1850.)

The subject of this operation was æt. 21, and had never menstruated. Five years ago she first perceived a small, hard, moveable lump in the lower part of the belly, on the left side, which slowly increased in size, approaching meanwhile the median line, and causing an appearance externally of gradual enlargement of the abdomen. In three years it had increased to its present size, and since then, she is of opinion that it has not materially enlarged. About this period, however, owing apparently to the pressure applied to the abdomen by her mode of dressing—with a view of concealing its unsightly prominence—she began to be troubled by a protrusion from the genitals, which was now a source of excessive annoyance; so that with the mortification caused by the abdominal enlargement, and the annoyance of the protrusion, which interfered with her walking, she was determined to submit to any means that promised relief. She was a young woman of fine appearance, and a recent opportunity which had offered of changing her mode of life contributed also to induce her to seek for aid.

Her general health had always been excellent, and her family rather remarkable for vigour of constitution, to which she was apparently no exception.

On examination, Dr. Van Buren found the abdominal cavity occupied by a large, uniformly hard, spherical tumour, about the size of the head of an adult. It occupied the centre of the belly, and was exceedingly moveable. In fact, it could be turned almost entirely over on its own axis, in attempting to roll it from one side of the abdomen to the other. The hands could be readily passed under the tumour, on every

side, when the patient was lying on her back, and it could thus be lifted, as it were, from its bed. It lay, ordinarily, in contact with the symphysis pubis, but the fingers could be insinuated beneath it on this aspect, without difficulty, and it could be forced upwards at least four inches from the pubes. Between the thighs lay the inverted vagina, and the uterus, in a state of complete *procidentia*, forming a tumour, which protruded more than four inches from the vulva. At the most dependent point of this tumour was, of course, the os uteri, into which Dr. Van Buren introduced a female catheter, which penetrated to the distance of five and three-quarter inches, before it came in contact with the fundus of the organ.

The tumour presented neither the ordinary shape nor feel of an uterus in a state of procidentia; it communicated to the fingers the idea of a long fibrous cylinder, about an inch in diameter. The *os* was perfectly healthy and natural in appearance, and contained some of the transparent and glutinous secretion of the follicles of the cavity of the cervix.*

On grasping the uterus as it lay between the thighs firmly with one hand, whilst with the other the abdominal tumour was pushed as far and firmly as possible upwards towards the diaphragm, no impulse could be recognised as communicated by one hand to the other: and at the time, when the greatest amount of force was applied, the two hands were fully eight inches distant from each other, thus affording fair demonstration that the attachments of the tumour to the uterus were susceptible of considerable elongation, which circumstance, taken in connection with the extreme mobility of the tumour, rendered it almost certain that the pedicle by which it was attached to the uterine apparatus was both long and slender. When the uterus was restored to its normal position, the lower edge of the tumour was distinctly felt from the vagina, and its probable connection with the left ovary recognised. This was confirmed by the origin of the tumour in the left iliac region, and by the result of a rectal examination in the upright position, by which means a knobbed projection from the tumour was distinguished, which was supposed to be the left ovary.

The state of the case and also the risks of a surgical operation having been candidly stated to the patient, she expressed her willingness to incur any risk for the prospect of relief.

The evident absence of any extensive connection of this solitary tumour with any of the abdominal viscera, its apparently purely fibrous character, and the absence of all suspicion of anything carcinomatous in its nature, together with the excellent constitution, and quiet, determined character exhibited by the patient, induced Mr. Van Buren to think very favorably of acceding to her request, and of submitting her to an operation. Her opinion that the tumour had not increased in size since the appearance of the *procidentia uteri*, he satisfied himself was fallacious. The efforts she employed to compress her abdomen within moderate dimensions, had evidently forced the tumour more into the cavity of the pelvis, and in so doing had extruded its natural

* The whole tumour could be readily reduced into the cavity of the pelvis, where it would remain as long as the patient preserved the horizontal position, but as soon as she rose to her feet it would come down again.

contents, whilst the enlargement of the abdomen was apparently arrested. From the gradual increase in the size of her dresses, it was only two evident that the disease was steadily growing.

The patient was confined to a diet of bread and water for a week, and two doses of oil given. The operation was performed at 1 p.m., Nov. 1st. The patient, who had not been allowed to eat anything for five hours previously, was rendered insensible by the inhalation of chloroform, in an adjoining apartment, and immediately before commencing the inhalation, she was requested to empty her bladder as perfectly as possible, her pulse at this time, as before, was 76. It was about 65 when she was placed upon the table, nor did it vary materially from this rate, or in quality, during the hour and fifteen minutes that she was kept under the full influence of the anæsthetic ; for she was not allowed to suffer the slightest pain, until some minutes after she was again replaced in bed, after the completion of the operation, the dressing, and the changing of her clothing.

After carefully replacing the uterus and vagina in their natural position, Dr. Van Buren made an incision on the *linea alba* ten inches in length, and cut carefully down to the peritoneum, tying or twisting all the vessels that gave blood, in order that as little as possible should escape into its cavity. This incision, after opening the peritoneum, and slitting it upwards and downwards with a probe-pointed bistoury to the full extent of the external wound, it was necessary to prolong fully two inches before the tumour, with some effort, could be forced through it. At this moment it was found that the omentum was adherent to the superior surface of the tumour, over a space as large as the open hand. This was quickly detached, the scalpel being carried as closely as possible to the periphery of the tumour ; three vessels of the omentum required ligatures—of which both ends were cut off close to the knot, and the remaining portions returned to take their chance in the cavity of the peritoneum. The omentum detached, the pedicle of the tumour was found, consisting in fact of the left broad ligament of the uterus, singularly elongated and attenuated. This was detached from the tumour, still cutting close to its surface, and tying five arteries of considerable size as they were divided. The cut surface on the tumour, left by the division of this solitary attachment to the uterus, measured a half inch by two and a half inches. The tumour being thus removed, its pedicle, some six inches in length with five ligatures attached near to its fimbriated extremity, and containing palpably the Fallopian tube in its substance, was left protruding through the wound. This it was proposed to include, at its middle, in a solitary ligature, removing the distal portion, and dividing carefully the peritoneum on the uterine side of the ligature, in order to avoid strangulation—thus substituting one ligature for five. This was accordingly done, and the fimbriated extremity of the Fallopian tube, together with the point of attachment of the tumour to the broad ligament, was cut away. In the portion remaining there was no trace of an ovary. The right ovary and fundus of the uterus appeared to be in a normal condition.

The omentum was now replaced and the wound closed by the introduction of seven full-sized "Carlsbad insect pins" at equal intervals,

around which were applied strands of soft coarse darning cotton, as recommended by Dieffenbach. Strips of adhesive plaster were accurately applied in the intervals, and the solitary ligature from the peritoneal cavity was brought out at the lower angle of the wound. A little scraped lint along the incision, a longitudinal compress, and a carefully applied bandage around the abdomen, completed the dressing. After changing some portions of her dress, our patient was carried to her bed-room, and was left, with but one attendant near her, in perfect quiet, until consciousness should return. At this time her pulse was seventy-five in the minute, and natural in quality.

Except two or three slight efforts at vomiting, the patient was perfectly quiet under the influence of chloroform. The peristaltic action of the intestines, usually so troublesome, was not observable. The tumour was twice twisted on its pedicle; it weighed seven pounds, and measured twenty-three inches in circumference. On its surface were two irregularly-shaped commencing cysts, each about the capacity of f℥ij, containing ordinary serum. At the point where the pedicle was attached was the knobbed projection, the size of half a billiard ball, which had been felt from the rectum. On laying the tumour fairly open, its structure was, to all appearance, purely fibrous, and that of the knobbed projection was similar in all respects to the rest of the tumour. Its substance was uniformly very dense, permeated by some large venous sinuses, and apparently well supplied with blood-vessels, some of which retaining their contents, made vascular patches on the cut surface; otherwise its colour in the anterior was of a dead white. Here and there on the cut surface a minute sac, or vesicle, the size of a very small pea, was to be seen laid open by the knife.

The patient gradually recovered without any very unusual symptoms—the smaller ligatures came away early, and on the 19th day the larger one from the broad ligament separated on slight traction.

Art. 92.—*Ovariotomy by Large Section.* By Dr. March.

(*New York Journal of Medicine*, July, 1850.)

This severe operation has also been successfully performed by Dr. March. The patient, æt. 49, was the mother of five children. The tumour was of three years' growth; it had increased rapidly within the last three or four months previous to removal. The incision was commenced about four inches above the umbilicus and carried in the line of the linea alba to near the pubis. The abdominal wall at the upper part was extremely thin, and by two or three strokes of the knife the tumour was readily brought into view. The wound was so extensive, being about twelve inches, and the tumour so much exposed, that it was readily discovered by the eye and hands to lie almost loose in the abdomen. To facilitate its extraction, a puncture was made in the front and lower part of it, by which nearly, or all of the water from the cyst was evacuated. The collapsed sac was followed down to its attachment to the right angle of the uterus, by which it was discovered that the ovarium had been dilated into a *monolocular* or single sac, attached to the uterus only by the broad ligament and Fallopian tube.

The patient lost nearly a pint of arterial blood, most of which fell into the cavity of the abdomen, and after having been properly removed, the wound in the abdominal wall was closed by eight interrupted sutures, and the ligatures brought out at the lower part of the wound. The dressings used were the same as those usually resorted to in such operations. In the after management, Dr. March constantly and regularly used morphine for some ten or twelve days. On the 34th day after the operation, the patient had so far recovered her health as to be able to perform a journey of over one hundred miles. In remarking on the operation, &c., Professor March says: "A monolocular hydatid, or fluid tumour, is regarded as the most favorable for removal. There should be no adhesions between the cyst and the wall of the abdomen, omentum, or intestines. The foot-stock or pedicle of the tumour should be small. I should prefer not to have the patient tapped at all, except as an exploring operation just as extirpation was about to take place. I would recommend to the surgeon to place his finger beneath the broad ligament or pedicle of the tumour, and divide with the knife upon it such part as would include the blood-vessels, and as they bleed secure them by a small ligature. After these are properly secured, I would then divide the Fallopian tube and the remainder of the folds of the peritoneum, which make up the broad ligament, as far from the angle of the uterus as practicable, and instead of fetching the ligatures out through the abdominal wall, I would suggest to have them threaded into a long *sail-maker's needle*, and conveyed by the aid of one finger in the vagina, carried high up, either in front or back of the uterus; and with the fingers of the other hand dipping down in the brim and cavity of the pelvis, through the pelvic partition transfixing it into the vagina, and out at the os externum."

By this procedure a less direct communication would be left with the peritoneal cavity; and if any serum or blood should remain in the lower part of the peritoneal cavity, it would, in the course of a few days, readily find an exit by the side of the ligatures, " per vaginam." In the author's case, he does not think there was the least peritoneal inflammation, except that which was caused by and situated immediately around the ligatures, where they had their exit from the abdominal wall. Why he would apply the ligature to the insulated blood-vessels, and as far as possible from the uterus, would be to avoid irritation and inflammation of that organ, and the fold of the peritoneal membrane, which forms the broad ligament. By this means the Fallopian tube need not be in the least irritated by coming in contact with a foreign substance.

Art. 93.—*On Displacement of the Ovary.* By Dr. Rigby.

(*Medical Times*, July, 6, 1850.)

The author states that he has of late years frequently noticed a painful affection in females which he thinks had not been previously described. It is characterised by sickening pain about the sacral region extending to one or both groins, and comes on in paroxysms of

agonising severity. In some cases the intermissions are distinct; in others, the pain, though mitigated, is never entirely lost. The pain is referred mainly to the rectum, being greatly aggravated by defecation. The patient describes the sensation of partial obstruction in the bowel, the passage of which she identifies with the pain. The pain is, moreover, described as quite peculiar, appearing, from the patient's account, to resemble the intense and peculiar suffering which patients describe in cases of orchitis. The pain is usually attended with great throbbing, and with a painful sense of forcing, or distension of the tender part, amounting almost to bursting, like something strangulated.

The menstrual periods, in such cases, have always been attended with intense pain, particularly during the early part of the discharge, though this varied a good deal in different patients, and the discharge was invariably attended with exudations and small coagula. At these times the whole lower part of the abdomen is frequently tender to the touch, and more or less fever is generally present, arising in part from the degree of suffering which had been induced. The tongue always shows the dry short-napped fur which is so constantly seen in cases of disease, or displacement of the pelvic viscera; the digestive organs are much deranged, and not unusually the stomach is extremely irritable.

On making a vaginal examination the patient would frequently wince, and complain as soon as the finger touched the os and cervix uteri; but a little care quickly sufficed to show that these parts were not morbidly tender, but that pain was produced by pressing them against the tender spot which was behind and to one side, in the direction of one or other of the sacro-iliac synchondroses, or sacro-ischiatic notches. On passing the finger, therefore, behind and to one side of the cervix, and pressing against the wall of the vagina in the above-mentioned direction, the painful spot is at once reached, and sometimes a slight degree of hardness is perceived.

On examining per rectum, the finger soon reaches the same acutely painful spot which had been felt per vaginam. The patient dreads the slightest touch of it, however carefully applied. It is evidently a convex body, like an enlarged gland, though usually softer, situated in the recto-vaginal pouch; it is moveable, if the patient can bear a sufficient amount of pressure for that purpose, and usually one or more vessels are felt throbbing when the finger presses upon it. The ovary is generally larger than natural, being more or less swollen from the strangulation produced by its displacement; and when the swelling is considerable, not only will pain be produced by pressing in the groin of the same side, but the ovary will be distinctly moved upon the finger per rectum. From the fact of its mobility can be explained the circumstance of our being able to feel it sometimes lower in the pelvis than at others, and why the patient is in greater suffering when it is so than when felt higher up. Hence the passage of a solid mass of feculent matter is attended with fearful sufferings; the ovary is pushed down by the fæcal mass as it descends through the rectum, until its attachments are put considerably on the stretch; a further amount of swelling is produced by this state of strangulation, and, in this condition, the fæcal mass is at length forced past, to the

indescribable agony of the patient, frequently leaving her in severe pain for many hours afterwards.

In other cases, the ovary is nearly or quite fixed, having apparently contracted adhesions to the neighbouring parts.

It is not easy to speak decidedly as to the causes of this displacement, but the author has chiefly, or almost solely, observed it among women of a lax, flabby habit, prone to passive menorrhagia, leucorrhœa, and abortion, but most particularly where the uterus has been retroverted.

The diagnosis is not difficult, for the pain is quite peculiar. It is of a forcing, throbbing character, so sickening and utterly intolerable as to be entirely different to any other pelvic pain. Its seat is referred to the upper and posterior part of the vagina, usually somewhat to the left side where the ovary can be felt, especially upon examination per rectum.

The direction in which we can best reach the painful spot will guide us as to applying leeches per rectum or vaginam; they pretty certainly produce much relief, although, so long as the displacement continues, it cannot be more than temporary. The grand object necessarily must be to restore the ovary to its natural position, and this, whether connected or not with retroversion, will be best obtained by the prone position. The patient soon learns by experience what amount of lying forwards will be required, but, as in cases of retroversion, it is generally found necessary to assume an extra degree of prone position for a few minutes (knees and elbows) previous to lying down upon the prone couch.

[An illustrative case is appended, for which we have not space.]

Art. 94.—*Novel Mode of Arresting Hæmorrhage in a Case of Thrombus of the Vulva.* By M. Fabre.

(*Revue Médico-Chirurgicale,* March 1850, and *Edinburgh Monthly Journal.*)

M. Fabre was called in haste to a woman in labour, who was taken with violent hæmorrhage. A thrombus was discovered in the labium of the right side, in size equal to the head of a child at the full time, and having at its centre a crevice, whence the blood flowed as water from a sponge. The woman who had been in attendance, attempting to make a vaginal examination, and finding, instead of a free passage, an enormous swelling, had mistaken it for the bag of membranes, and unfortunately succeeded in rupturing it.

Having no ligatures at hand to apply, nor the necessary means for producing regular compression, M. Fabre resorted to the following ingenious expedient, in order to arrest the bleeding. He procured a green willow-wand, of about three centimetres in thickness, so elastic, that when split up from one of its ends, the two halves came again into close apposition, and so strong, that in separating the two parts at one end it did not split up to the other. The wand was twenty-two centimetres long, and split along three fourths of its length by a

knife. Both halves of the wand were well covered with lint to protect the soft parts against the hard wood.

An assistant pinched up the edges of the laceration. These were then engaged between the two parts of the wand, which seized them strongly in consequence of its elasticity. The hæmorrhage was in this manner completely arrested.

The woman was delivered three days subsequently, and the apparatus was required to be removed to permit the passage of the head. The hæmorrhage did not return, and the woman did well.

Art. 95.—*On Oozing Tumour of the Labium, with a Case.* By Hugh R. Rump, Esq., Wells, Norfolk.

(*Prov. Med. and Surg. Journal*, Sept. 4, 1850.)

This disease, first described and designated by Sir Charles Clarke, may be considered of rare occurrence; it is generally met with in females after the catamenial decline, but it is not exclusively confined to this period of life, as occasionally it manifests itself in young persons. Stout, leuco-phlegmatic women, of low power and nervous temperament, whose general health may have been impaired or broken down by frequent child-bearing, mental anxiety, or intemperance, seem to be especially prone to the disease. The first symptoms which attract the patient's attention, are heat and slight irritation of the labium, especially after exercise; at this time there may be little or no swelling, but as the disease advances the labium enlarges, and becomes bathed with a clear ichorous discharge, producing constant and distressing smarting or itching of the vulva, and excoriating the surrounding parts; micturition also becomes painful, and sexual intercourse cannot be indulged in without severe suffering. This train of symptoms cannot exist for any lengthened period without increasing, to a great extent, the pre-existing constitutional derangement; and it is for the failing health, rather than the local disease, (unless severe,) that the patient generally seeks advice.

The disease most frequently attacks one labium, but both labia may become involved, simply the effect of irritation, and not of any specific action. This tumour does not usually increase rapidly, or attain a large size, but exhibits a disposition rather to extend itself superficially, and seldom projects to any great elevation above the surrounding skin. The subjoined case is, however, an exception. When fully developed, the labial tumour presents the following appearance: Its colour may be slightly altered from that of the integuments of the adjacent parts, assuming a more dusky or *tanned* aspect, but this is by no means constant. The surface of the growth is very irregular and uneven, from the existence of numerous elevations and depressions, or, more correctly speaking, small eminences appear to be caused by its being channeled or furrowed in different directions over its whole extent by shallow grooves, leaving elevated spots between them. It is within these sulci that the small fissures or chaps from which the exudation takes place are found; they are either transverse (as regards the labium) or crescentic, and appear to be lined with a delicate

pseudo-mucous membrane, resembling that covering certain warty growths. The discharge (the peculiar and distinctive symptom of the disease) is clear and pellucid, and, as far as the author has been able to ascertain, has no tendency to become purulent or sanguineous, unless as a result of the local treatment to which the growth has been subjected. If the surface of the tumour be sponged, and then wiped perfectly dry, the discharge soon reaccumulates, and thus the parts adjacent are constantly bathed and fretted by the irritating fluid, the quantity and quality of which is greatly modified by the extent of the disease, the patient's state of health, habits of life, or even by atmospheric influence. The affected labium imparts to the touch a firm *brawny* sensation, and is pretty tolerant of manipulation, except in the vicinity of the chaps or fissures, where it is very sensitive. After removal, when examined by making sections in different parts, it exhibits hypertrophy of the integument and of the areolar structure of the labium, to which it owes its firmness.

From the preceding observations it may be inferred that the "oozing tumour of the labium" is a disease *sui generis*, that it is non-malignant, and originates, in certain debilitated states of the constitution, from a low inflammatory process, accompanied by, or producing, excessive epidermal development, with fibrous induration and consolidation of the subjacent areolar tissue, but at the same time differing essentially from the hypertrophy of the scrotum and penis of the male (a disease exceedingly common in hot climates) by its characteristic watery discharge.

The diagnosis of the disease is simple, the only diseases with which it might be confounded are, sarcomatous, encysted, or warty growths, and erysipelatous inflammation of the part, but a moment's reflection would solve any doubt that might exist. The treatment may be divided into palliative and radical; the former plan, upon the whole, being extremely unsatisfactory, and only to be recommended or adopted in order to gain time when the patient's health is in too precarious a state to admit of an operation being performed, and to relieve in a measure the suffering until the powers may be recruited by appropriate treatment. Locally, spirituous washes and the cold hip-bath, or frequent ablutions with cold water, appear to afford the patient the greatest amount of relief; but dusting powders or absorbents, such as calamine, starch powder, flour, oxide of zinc, &c., are prejudicial, as they choke up the fissures, and induce increased uneasiness and irritation. The greatest amount of benefit, however, will be derived from paying attention to the patient's general health. A good generous diet, with a certain allowance of malt liquor or lime, frequent exposure to the sea breeze, or to a fresh bracing wind, together with the exhibition of the mineral and vegetable tonics and alteratives, will repair the constitutional derangement, and fit the sufferer for the radical treatment of the disease.

Case.—March 17th, 1850.—Mrs. ——, æt. 23, very fair, having light hair and blue eyes, and of short stature, has been married about five months.

At Michaelmas, 1849, she made a short journey to a neighbouring market town, whilst suffering from the effects of cold, and complaining

of slight stiffness in the left groin. She stood about with damp shoes on, all that day, and on the next morning she discovered an enlargement of the left labium; it was quite hard, but not tender to the touch. In a few days a bubo formed, suppurated, and was opened, and after the labial swelling had existed a short time, it began to discharge from its surface a clear watery fluid, but of so irritating a character, that wherever it chanced to lodge, it produced painful excoriations, and sexual intercourse could no longer be tolerated. The treatment adopted at the time did not alleviate her symptoms, constant irritation acting upon a very excitable mind, soon produced great exhaustion, and she became so debilitated as to be incapable of attending to her domestic duties. Upon making an examination, the left labium was found considerably enlarged,—viz., projecting beyond the other about an inch and a half, and extending itself in front of, and concealing, the genital fissure. The swelling arose in the mons veneris, and terminated at the fourchette or commissure of the labia. It presented an irregular or *wrinkled* appearance, from slight eminences and depressions on its surface. It was firm to the touch, and of rather a darker colour than the other labium. In the left groin was a sinus discharging freely, and the parts about the vulva were excoriated. She was ordered to take a good nutritious diet with malt liquor, to pay special attention to cleanliness by frequent sponging with cold water, and to take—

℞ Ferri iodidi, gr. ij;
Decoct. sarzæ co., (Bass) ʒj;
Syr. aurantii, ʒj;
Tinct. valerianæ, ʒij;
Inf. gent. co. ℥j; ter die.

Hyd. cum cretâ, gr. iij;
Extr. conii, gr. iv;
Extr. coloc. co., gr. v; alt: noct:

April 11th.—The patient's health has greatly improved, and she has gained flesh and strength. The tumour continues in the same condition. Removal was proposed and readily assented to.

12th.—The patient having been secured in the lithotomy position, the operation was performed in the following manner: The tumour was drawn forward from the pubes, and its base transfixed near the clitoris and on a level with the nympha, with a straight bistoury, which was then carried downwards to the fourchette and brought out. The knife was reapplied and directed upwards towards the mons, by this means the labium was speedily removed. The round ligament was laid bare, and three small arterial branches bled, but did not require a ligature. The edges of the long elliptical wound were brought together by interrupted sutures, and cold-water dressing applied.

30th.—Wound perfectly healed without any untoward symptom, and patient's health restored.

Art. 96.—*Savine in the Treatment of Habitual Abortion.* By Dr. Metsch.

(*Zeitschrift für Geburtkunde*, Band xxvi; and *Brit. and For. Med. Rev.*, April, 1850.)

When the disposition to abortion is dependent upon a diminished vitality of the uterine system or functional weakness of its nutritive vessels, Dr. Metsch says that medicines of a stimulant and strengthening description, acting powerfully upon the circulation of the organ, are indicated, and of all such substances *savine* is that which is most to be relied on for this end. Of course so powerful a drug requires skilful selection of appropriate cases for its employment, or it may give rise to hyperæmia of the pelvic abdominal organs, inducing hæmorrhage, inflammation, abortion, or death itself. Local or general plethora, or serious disease of any part, contraindicate its use. An infusion is made by adding from two to four drachms to six ounces of boiling water, a spoonful being given morning and afternoon during the intervals between the menstrual periods. On some occasions, before commencing with it, catarrhal or gastric disturbances have to be allayed, as also irritation dependent upon congestion, rheumatism, or disorder of the nervous system. Small general or local bleedings, emetics, aperients, tepid baths, or friction of the surface are required in different cases. So, too, regulation of diet, abstinence from sexual excitement, rest in the horizontal position as long as pain is present, are then indicated.

If the disposition to abortion depends upon an augmented irritability and contractility, (a condition not always opposed to the first named,) the savine does not alone suffice, but a medicine is required that exerts a special effect in regulating uterine irritability, the ergot of rye, which should be added to the savine infusion in the proportion of one to two, when former miscarriages have been induced by the primary contraction of the womb without preliminary hæmorrhage. Another modification in the prophylaxis is to be made when former abortions have been attended with great urinary irritation, in which case six drops of Tr. Lyttæ should be added to each dose. When, prior to former abortions, there has been great disturbance of the digestive organs, very small doses of ipecacuanha may be alternated with the above.

The savine is also found useful in various chronic diseases of the female genital organs, connected with vascular and secretory torpor, especially in passive hæmorrhages and leucorrhœa. In the same way it is of good service, conjoined with mechanical means, in treating prolapsus uteri consequent on frequent or difficult labours and abortions.

Art. 97.—*Case of the Cæsarean Operation.* By Matthew Nimmo, Esq, Surgeon to the Dundee Infirmary.

(*Edinburgh Monthly Journal*, Sept. 1850.)

The patient was forty-three years of age, small in stature, deformed and emaciated. She had borne three children, the first when twenty-four years old, and had an easy labour. Her second pregnancy was at

the age of twenty-seven, and her labour was again easy. During her third pregnancy she suffered from severe pains in the lumbar and pelvic regions, which she ascribed to rheumatism, and became slightly lame. Her third labour was severe and protracted, lasting three days, and the forceps were required. Since that time, which was in 1835, she had gradually become more and more decrepit.

On examination per vaginam, a hard rounded body, somewhat resembling the fœtal head, was felt in the position of the upper part of the sacrum. Anteriorly the rami of the pubes were so approximated, that the finger could scarcely be introduced between the protuberance and symphysis; at each side of the projection the finger could be passed, but could not reach the os uteri. The fœtal head could be felt externally lying on the brim of the pelvis. The fœtal heart was heard distinctly by the stethoscope.

The patient was removed at 2 A. M. to the Dundee Royal Infirmary, and after consultation, the Cæsarean operation was commenced at 2 o'clock P. M. The ward was heated to between 70° and 80° Fahr., the rectum and bladder had been evacuated. After she had been placed deeply under the influence of chloroform, an incision was made in the linea alba, from the umbilicus to within an inch and a half of the symphysis pubis, and the other steps in the operation having been proceeded with, the placenta was detached from the fundus, and the child speedily removed from the uterus. Immediately that the uterus was emptied the patient vomited. The wound was closed by the interrupted suture, and a compress and bandage were applied to the abdomen. Vomiting continued at intervals, and the patient sank about 5 P. M.; the child was saved.

[In his remarks on this case, the author alludes to the extreme cachectic state of the woman as a reason for her death; but does not mention that it might have been partially due to the chloroform. Death in three hours, without hemorrhage, is not the usual sequence of the Cæsarean operation.]

ART. 98.—*On the causes of the non-success of the Cæsarean Operation.* By Dr. ROUBAIX.

(*Encyclograph Médicale,* Juin, 1850.)

Dr. Roubaix, of Brussels, has published an elaborate memoir, in which he passes in review various questions connected with this operation. As, for instance: whether the danger of the operation consists in the incisions themselves; whether it is the result of some error in the operative proceedings; or is induced by the circumstances under which the operation is performed; and lastly, whether by any modification of operation, greater success can be ensured. These are the problems which the author attempts to solve.

1. *Does the danger of the operation depend on the dangerous consequences of the incisions?*

In answering this question, the author divides the tissues incised into three categories: the first comprising the abdominal parietes; the second, the peritoneum; the third, the womb.

Respecting the first of these, he observes, that little need be said, as wounds of the integuments do not differ from ordinary wounds; the danger is in the incising the peritoneum and womb. He further states, that judging by the analogy of other operations in which the peritoneum is interested, we cannot consider the danger to be in the incision of this membrane; as in the case of hernia, and in many severe accidental wounds, it is often extensively injured without bad consequences. In the lower animals the operation of spaying is another instance in point. So also wounds of other serous membranes, as the pleura, are comparatively harmless, as long as the important organs of the chest are uninjured. In the operation for cataract, again, the serous membrane of the eye is perforated without danger, and the same may be said of hydrocele. On these grounds the author considers that the danger of wounds of serous membranes has been greatly exaggerated, and he thinks this arises probably from the intense pain which inflammation of these tissues gives rise to. He concludes upon the whole, therefore, that the dangers of the Cæsarean operation are not due to wounding the serous membrane, abstractedly considered.

Is it, he next inquires, the incision of the uterine parietes which causes the risk? Here he reminds us that it is a complicated and delicate organ which is wounded, and that it consists of serous membrane, muscular fibre, vessels, nerves, and mucous membrane. But muscular fibres, nerves, and vessels are wounded in amputations without similar risk, and no surgeon hesitates to incise the mucous membrane of the mouth, nose, &c.; wherefore he formally decides, that division of the uterine tissues likewise is not the essential cause of the mortality of the Cæsarean operation. He next inquires :—

2. *Is the danger of the operation due to error in its detail, or in the subsequent dressing?*

In replying to this second query, the author reviews the several steps of the operation after the following manner :

Everything being ready, the surgeon first divides the abdominal integuments, and, according to general practice, when he arrives at the peritoneum, he makes an opening just sufficient to admit the finger; with which he raises the peritoneum while he makes the necessary incision. Now, in so doing, he not only admits air but also the flow of blood into the peritoneal cavity. The surgeon, in the next place, opens the uterus, from which floods of blood pass into the abdomen; the amnios is next opened, and its contents are also effused. The infant and secundines are then taken away, the clots of blood removed, the intestines pushed back, and the external wound is closed.

We need only, observes the author, reflect an instant to perceive, 1, that air enters the peritoneal cavity and sometimes into the uterine sinuses; 2, that blood and liquor amnii, and subsequently the lochial discharge, may also escape into the same cavity. These are, in the author's estimation, the real causes of the fatality of the operation.

The evil consequences of the admission of air into the tissues are daily observed in surgery. A simple fracture is a trifling accident, but a compound fracture of the same bone is a serious affair. To open a large chronic abscess is often to give rise to a train of fatal

symptoms; if, however, the admission of air be prevented, no such evils appear. It is the same in empyema and fractures of joints. Again, it is well known that to open ganglions is dangerous, but to rupture them under the skin gives rise to no unpleasant effects.

Many other instances might be cited to exhibit the pernicious effects of the contact of air; but the multiplication of evidence would be useless.

The entrance of air into the uterine sinuses during the Cæsarean operation, the author thinks has been too much overlooked. He observes that the anatomical construction of these sinuses is such as to favour the admission of air, which is one of the most dreaded contingencies of surgery. That the distance from the heart is no preservative the author shows, by referring to instances in which air has entered their sinuses during labour in sufficient quantities to cause instantaneous death. Although this may not be the effect of the accident in the Cæsarean operation, sufficient air may be admitted to give rise to the most fatal form of phlebitis.

The effusion of blood into the peritoneal sac is regarded by the author as another obstacle to success; for whatever pains may be taken to remove it, there will always be sufficient left to excite inflammation and its consequences. The presence of the liquor amnii also, though not so injurious as air or blood, is nevertheless to be considered as more or less injurious.

Thus, the introduction of air, of blood, and of liquor amnii, are accidents which are in a measure inherent to the Cæsarean operation, and are sufficient, in the author's opinion, to explain a great portion of the ill consequences of this severe operation. He next inquires what amount of mischief may also arise from improper after-management. He alludes to the practice of applying refrigerants and tropical astringents to the uterine incision, as well as the practice of preventing union by first intention; by which an additional cause of irritation is allowed, in the escape of the lochia into the peritoneum.

3. *Are the dangerous results of the Cæsarean operation in anywise attributable to the circumstances under which it is performed?*

This is the third query which the author proposes, and which he at once answers in the affirmative. It is a point of great consequence in all operations, if possible, to make incisions into healthy tissues; but in the Cæsarean operation this is often impossible, from the fact that the operation is too often delayed, and not attempted until the uterus is fatigued by useless efforts, and the soft parts are more or less bruised and injured by imperfect attempts to deliver, *per vias naturales*. It is, therefore, he considers, a matter of great consequence as regards the probability of success, not to postpone the operation too long. Once that it is decided that delivery in the ordinary way is impossible, no time should be thrown away in fruitless endeavours to deliver.

We now come to the last question. *Is it possible to diminish the chances of failure by any modification in the operation?*

This question also the author answers confidently in the affirmative, and gives certain rules for accomplishing the safety of the patient. These are:—

1. To prevent the entrance of air into the peritoneal cavity, and the uterine sinuses.

2. To prevent the effusion of blood and liquor amnii.
3. To make the incisions in such a manner that union by first intention may be encouraged as far as possible.
4. To take precautions against inflammation of neighbouring parts.
5. To perform the operation at a favorable time.

All these rules are exemplified in the following description of the operation :—

Labour should be allowed to progress until the os uteri is well dilated and the membranes present. The rectum having been previously emptied, the patient is then to be placed on a narrow couch, with cushions under her loins, so as to cause the abdomen to project. The thighs are to be slightly flexed, and the bladder emptied by the catheter. Two assistants should be placed, one on the right side, and the other opposite the patient's left thigh. These two assistants are there to maintain a steady pressure on each side of the abdomen.

All being thus arranged, the operator, placed on the right side, proceeds to make an incision in the median line, from the umbilicus to within an inch of the pubes. When he arrives at the peritoneum, he is to open it carefully on a director, previously taking care that the assistants make so close a compression as shall as much as possible prevent the admission of air. The womb is now laid bare, and the next step is to incise it in the median line, down to the membranes. If the assistants do their duty, the blood which now pours out should scarcely, if at all, penetrate into the peritoneal sac. Now is the moment to rupture the membranes and allow the escape of the liquor amnii, per vaginam. When it is thoroughly emptied, the membranes are to be incised, and the child and after-birth carefully extracted.

When the hemorrhage has ceased, the parts are to be gently sponged, and sutures are to be inserted through the entire length of the incision in the abdominal parietes, and compresses and bandages are to be so applied as to take off the traction upon the points of suture; the after treatment should consist in catheterism two or three times a day, and careful regulation of diet. Vaginal injections should be avoided, for fear of the fluid gaining access to the peritoneum. If the wound does not heal by first intention, it must be treated on ordinary principles as a suppurating wound.

Art. 99.—*Treatment of Puerperal Fever.* By E. W. Murphy, M.D.

(*Medical Gazette*, Jan. 28, 1850.)

[As a general rule we avoid the republication of the routine lectures which are now so commonly committed to the pages of the weekly journals, but puerperal fever is a disease of so much moment, and it is so important to the practitioner to have the most enlightened views on the subject of treatment at his "fingers' ends," as it were, that we offer no apology for departing from our usual custom. After an admirable history of the various types of child-bed fever, their symptoms and pathology, Dr. Murphy thus proceeds :]

The treatment of puerperal fever must be considered in reference to the views of the malady above stated. It divides itself into two

questions: First, the prophylactic treatment. In discussing this question, I must ask the reader to assume with me that it is contagious. If it be not, precaution taken can do no harm. On the other hand, if it be contagious, the neglect of such means of prevention would do infinite mischief. We have already alluded to the rapid diminution and ultimate disappearance of puerperal fever in the Dublin Lying-in Hospital, when Dr. Collins put into force active sanatory measures. The chief agent employed by him was chlorine. Dr. Routh gives an interesting account of the means adopted by Dr. Semelweiss, for preventing the spread of the disease. "He recommended all students frequenting the division (the labour-wards) not to handle dead matter, or if they did, he forbade them to make any examination till the following day. In the second place he directed all the students who attended the practice of the division *to wash their hands in a solution of chlorine prior to and after every (vaginal) examination made on the living subject.* The result of these precautionary measures was that the number of deaths at once fell to seven per month." They had been from 30 to 70 per month, and we can assign no other cause for this great difference of mortality than the means used by Dr. Semelweiss for preventing the communication of the disease. The prophylactic was chlorine, and hence, comparing the facts related by Dr. Collins with those of Dr. Semelweiss, this gas seems to have the power of destroying the poison. In order, therefore, to prevent the diffusion of puerperal fever, chlorine is essential. Solutions of it should be freely used, the hands washed, and the sheets of the bed sprinkled with it, even at the risk of damaging their texture. The vapour of chlorine should also be diffused through the apartment. I am inclined to think that the chlorates of soda or potass taken internally would be useful on the same principle. Besides these means the practitioner should also be careful, if in attendance of a case of puerperal fever, to change his dress before he visits another patient in labour. The fomites of the fever have been known to lurk about the dress of the attendant, and reproduce it after a period much later than might be imagined. In one ward of the Dublin Lying-in Hospital, the fomites remained for months, and renewed the disorder. If proper precautions are used, I am satisfied that there is no danger of communicating puerperal fever; but I fear that in some instances a want of caution has had this effect. The practitioner may have been led astray by the theorist, who tells him that puerperal fever is nothing but a local inflammation, which we know is not contagious; or he may imagine that there is no risk because some of his patients may have escaped contamination. Errors of this kind, we have reason to think, have led to the dissemination of the poison, and should be carefully guarded against.

The remedial treatment has been a warm subject of controversy, chiefly arising from the different views of the disease that have been advocated. Those who hold the doctrine of local phlegmasia defend an active antiphlogistic treatment; while the advocates of the epizootic character of puerperal fever maintain the importance of supporting the constitution against the attack. It appears to us that the treatment of both, to a certain extent, is correct, although the principle on

which the antiphlogistic plan is founded we believe to be erroneous. Depletion, purgatives, emetics, certainly reduce inflammation, because they diminish the quantity of the blood and the velocity with which it is impelled by the heart; but the very same means, by lessening the quantity of poisoned blood, and by acting as evacuants to discharge a poison from the circulation only, renders the blood more pure and less dangerous than it was before. These remedies are beneficial, therefore, not as antiphlogistics, but as antiseptics. If we act on such a principle the only question we have to decide is—Can the patient bear the treatment? Has the constitution sufficient power to recover itself from the loss occasioned by the treatment when it is already prostrated by the influence of a poison? We believe that this question will admit of no general answer; we can only speak with a special reference to the constitution and the conditions in which it is placed. If the dose of the poison be excessive, evacuants are inadmissible, because the constitution has no power, no reaction. On this principle we object to depletion in Armstrong's "congestive disease," and consider Mackintosh's doctrine of "latent peritonitis" altogether fallacious when applied to puerperal fever. If but little be absorbed, and the prominent symptoms are of a sthenic character, evacuants are the most efficient, because the poison is rapidly removed, any local inflammation is promptly subdued, and the constitution soon recovers itself. Between these extremes there is every shade of intensity in the disease, which almost renders each case a separate subject of consideration. In some the evacuant treatment, in others the stimulant, is successful. In those situations where the poison is concentrated, as in hospitals, or in places where it suddenly appears and commits great devastation, we think that the stimulant practice is most advisable. The remarkable success of Dr. Copland's practice in the Queen Charlotte's Hospital, is a sufficient illustration of this truth, and may be contrasted with the failure of Armstrong's treatment in the Dublin Lying-in Hospital, about the same period. On the other hand, when the poison is diffused, as in private practice, evacuants may be employed with advantage: at the same time it is right to observe that the natural strength of the patient's constitution forms an important element in determining this question. It is very well known that the strength of constitution varies with the locality. The inhabitants of London, for instance, do not bear the same activity of antiphlogistic treatment as those of Dublin or Edinburgh. The residents of a country district, breathing a purer air, and enjoying active exercise, or occupied in rustic duties, have stronger constitutions than citizens; and thus, when we would wish to form a fair estimate of any proposed treatment by the evidence of its success which is adduced, it is very important to inquire where the cases treated have lived. Dr. Gordon's and Mr. Hey's were chiefly rural practices. Dr. Armstrong's and Dr. Mackintosh's scattered over a town; and although each met with cases of intense puerperal fever, they were the exceptions, not the rule: we have every reason to think that their "clientelle" consisted of patients with naturally strong constitutions that would admit of free evacuation. You may meet, however, and in cities often will meet, with patients whom you cannot bleed, and who require stimulants; we

cannot, therefore, lay down a general rule, unless it be that of Sydenham—"to study the constitution of the year," and we would add, "of the place." Having premised these general observations, we shall proceed to consider separately the remedies usually employed; and first, with regard to the evacuants.

Depletion is more generally employed than any other mode of treatment. Dr. Ferguson, after a most careful and cautious inquiry, gives the following as the sum of his experience of bleeding as a remedy in puerperal fever:—"Of all the means we possess of arresting this malady, I believe bleeding, general or local, to be far the most extensively applicable. The cases in which it is not so are exceptions to to the rule." We fully agree in this opinion, but we do not consider depletion efficacious because it is an antiphlogistic, but because it is a most rapid evacuant. On this principle alone can we explain the efficacy of the very bold depletion sometimes employed. We do not treat peritonitis by taking away very large quantities of blood, and there are some forms of it in which we cannot bleed at all. Yet in puerperal fever Hey took twenty, thirty, even fifty ounces of blood from the arm. Mackintosh says—"In some fortunate cases, the histories of which were lost in my travels, I can well remember abstracting between forty and fifty ounces at one bleeding." In order that depletion be efficient it should be promptly undertaken the moment that a rigor gives evidence that the poison is absorbed; the removal of blood then is attended with the best effects; but at a later period, when time is given to alter its properties, and to soften the tissues, when effusions take place, depletion has a contrary effect; the strength of the patient at once gives way, and death rapidly follows. Such we believe to be the principle on which depletion, when it may be adopted, is useful; but you must always bear in mind that it may be quite inadmissible,—you must carefully inquire into the character of the epidemic, the constitution of your patient, and, as I have said, the constitution of the place. If you seek among the symptoms for a guide to determine your practice, I know of none we can depend on but the pulse, and even that is uncertain. If the pulse be firm and wiry you may bleed, but if it be compressible and unsteady you cannot do so. In the former case the constitution is struggling against the disease, and manifests a degree of vigour that will admit of depletion. In the latter, it is rapidly giving way under the attack, and depletion only hastens debility and its consequence, death: but although this is generally true there are often exceptions in both cases which may deceive you. Depletion, therefore, sometimes must be tried as an experiment, and if so, should be had recourse to as soon as after the rigor as possible; at a later period it should never be employed. In hospital practice, and with women in the lower walks of life, who have been subjected to privations or causes of mental depression, we would not think depletion advisable.

Purgatives, also, act as evacuants, and those that have had the most power in this respect have always been the most efficient. The hydragogue cathartics, which produce the most rapid and abundant discharges from the intestines, are preferred. The object is not merely to unload the intestines, but to produce catharsis. In one case, Dr.

Armstrong having taken twenty-four ounces of blood from the arm, so as to induce fainting, gave a scruple of calomel and two ounces of strong infusion of senna, containing two drachms of sulphate of magnesia, every hour till copious evacuations should be produced. "In about four hours the medicines began to operate, and several copious, dark, fetid stools were discharged; from that time considerable relief was obtained, and a regular perseverance in purgatives, with mucilaginous drinks, and a small quantity of exceedingly weak chicken-broth, completed the cure in five days." This, certainly is not the treatment of peritonitis. If this active practice overcame the obstinate constipation that attends this inflammation, it would have the effect, not of reducing, but of greatly increasing it; but as a means of purifying the blood, by exciting an active secretion from the intestines, the practice is intelligible.

Emetics were among the first remedies discovered for the treatment of this disease. In 1782, Doulcet at once checked the progress of this distemper by the free use of emetics; the hint was given him by Nature herself; one of his patients, who had been just attacked, made several efforts to vomit; he gave her a large emetic, which proved salutary. He continued them, and she recovered. This practice was repeated in every case, and with such remarkable success that it was supposed Doulcet had found a specific; a second visitation, however, afterwards presented itself, and Doulcet's specific was found to be of no use. Richter, Tonnellé, and Cruveilhier, also found emetics, in some cases, very useful. This practice, then, fails in some instances and succeeds in others. Can any reason be assigned for this difference of success? Dr. Ferguson, we think, has given the true explanation. Emetics are efficient "when the violence of the malady has fallen on the liver especially, and when there is early nausea and spontaneous vomiting." "In puerperal fever I have already noticed the frequency of nausea, biliary derangement, dusky staining of the skin, and jaundice; and it must not be forgotten that Gaspard and Cruveilhier have proved that one of the modes by which infection of the blood is relieved is through the liver. On these grounds, and within these limits, the use of emetics will be found rational and beneficial."

Diuretics have received very little attention in the treatment of puerperal fever; yet, as evacuants, I believe them to be very efficient. In some cases I have found the free use of nitrate of potass of great value; and although as yet my experience of it as an evacuant in puerperal fever is too limited to speak with sufficient confidence, I am inclined to think that it is well worthy of a more decided notice from the profession. Its action may be explained on the same principle as emetics—the infection of the blood being relieved through the kidney in place of the liver.

Mercury is the only medicine that may be considered strictly as an antiphlogistic, and it is the only remedy of doubtful efficacy. Patients have been salivated with mercury, and no remission of the symptoms followed. Dr. Fergusson says—"With regard to the use of mercury in puerperal fever, I think that as a purge it may be used in all the forms with advantage, but not as a means of affecting the constitution." Dr. Collins used mercury in combination with ipecacuan in

large doses, four grains of each, every second, third, or fourth hour. In other instances, he gave a scruple of calomel every second or third hour. "One patient took more than an ounce." Dr. Collins further remarks—"I could not observe any better effect from the large doses than the small; the system was not more speedily influenced; and when they did so act, it was often with violence, so as to endanger the destruction of the soft parts about the palate." In a note he observes —"It is supposed by some practitioners that when we can get the system under the influence of mercury recovery is certain. This is not the fact, as I have seen in several cases, where death took place under these circumstances. It is, notwithstanding, a very favorable occurrence." Mercury, therefore, seems to be the least efficient of the remedies employed.

Antimonials have been also employed. Boer used an unknown preparation extensively in the Vienna Hospital. Dr. Gooch supposed it to be "Kermes mineral;" Dr. Fergusson, "James's powder." Its action was chiefly on the skin, and was found to have a most beneficial effect. Dr. Denman derived considerable advantage from tartar emetic in the treatment of puerperal fever, acting both as an emetic and in increasing the action of the exhalants.

In the treatment, then, of puerperal fever by evacuants, the first question to decide is—Can the patient bear any evacuation? The extreme degree, the ataxic form of the fever, admits of none. In the less severe varieties we may use some one or other of them, and it only remains to determine which we shall select. If the pulse justify depletion, it is the most efficient when promptly adopted. Active saline purgatives may also be used in such cases with advantage. In more severe cases the lancet may not be employed, and yet other evacuants may be useful, which Nature herself will sometimes indicate. The fever may commence with an attack of diarrhœa, and if, in place of checking it, we rather maintain the evacuation, the patient will recover. Bilious vomiting taught Doulcet the value of emetics, and so, with regard to the efforts to throw off the disease by other channels, the symptoms will point out the treatment. There are cases, however, in which no evacuation dare be attempted,—in which stimulants alone will save the patient; and when this course is pursued it must be a bold one—a hesitating practice is perfectly useless. Dr. Copland gave from eight to sixteen grains of camphor every four or five hours. On the same principle opium may be given to any extent short of narcotism; but by far the most efficient stimulant is turpentine, because it combines in itself a double power. It supports the constitution, or rather rouses its energies against the poison, while it acts as an evacuant in removing it. Turpentine may be combined with castor-oil, in half-ounce doses, and given every three or four hours with great advantage. As a local application, also, it contributes greatly to relieve the abdominal pain which the patient experiences. With regard to this medicine, I have no hesitation in stating, with Dr. Copland, that "*there is certainly no remedy so efficacious as a decided and judicious use of spirit of turpentine.*" With these observations we shall conclude the discussion of this perplexed subject, fully aware that in our attempts to unravel some of its difficulties we origi-

nate new questions for discussion and controversy. If, however, we have succeeded in rendering intelligible the principles upon which it appears to us the most efficient plans of treatment have been successful, our object has been fully accomplished.

Art. 100.—*New Vaginal Plug for arresting Uterine Hæmorrhage.* By Dr. Gariel.

(*Journal de Médecine*, Avril, 1850, and *Monthly Journal*, Sept. 1850.)

Dr. Gariel, of Paris, has constructed a new form of plug. It consists of a slim bag of vulcanized caoutchouc, of the size of a small orange, but capable, by insufflation, of being expanded easily to three or four times that volume. In order to allow of its insufflation, a slender tube, of the same substance, twelve or eighteen inches long, but with thicker parietes, is attached to the bag. The bag and tube weigh only one or two drachms. The small, soft, empty bag is easily introduced into the vagina, and when properly insufflated it accurately adapts itself to the vagina, forming a very perfect plug, and, as we believe, one that may be found very effective and useful. A ligature or knot, thrown round the tube, retains the bag in a distended state. This air is allowed to escape before the withdrawal of the plug, thus greatly facilitating its extraction—a part of the procedure with the common sponge and other plug, that is generally accompanied both with some pain and difficulty. It has been successfully used in France in arresting hæmorrhages, both connected with labour and with diseases of the uterus. A similar application of caoutchouc, as a simple and perfect vaginal plug, was, we know, made some time ago by Dr. Hamilton, of Falkirk.

SECT. II.—DISEASES OF CHILDREN.

Art. 101.—*On Hæmorrhage from the Umbilicus, in Infants.* By John Manley, M.D.

(*Medical Gazette*, May 3, 1850.)

[A fatal case of this accident having occurred to Dr. Manley, he was induced to study its history; the results of his inquiries he has embodied in a paper read before the Abernethian Society. The writer informs us that Underwood is the first writer who has alluded to umbilical hæmorrhage. He then alludes to the paper of Mr. Ray on the subject, and to that of Dr. Bowditch, which appears in our last volume, p. 281. He also quotes some cases published by Dr. Campbell, under the title of *Icterus gravis Infantum*, (Northern Journal of Medicine, vol. i, p. 237,) in all of which some malformation or diseased condition of the biliary apparatus and fœtal vessels was noticed. Upon these several cases Dr. Manley makes the following comments:]

It is difficult, on perusing these curious histories, not to be struck

with the very frequent repetition of some most prominent features. A singularity of them which has particularly attracted the attention of Mr. Ray, is, to use the words of this writer, "the peculiar disposition this kind of hæmorrhage has to attack the male sex only, and its liability to occur in a succession of male children from the same parents."

The case that came under my own observation, and several of those to which I have alluded, corroborate the first part of Mr. Ray's proposition; and one of those recorded by Dr. Campbell will be found to confirm the second; at the same time, it must not be forgotten that we have mentioned two cases in which the accident was observed in infants of the female sex. It may, therefore, be questioned whether the frequency of its occurrence in males, as hitherto observed, be not a purely accidental result, which may be no longer found to obtain, as more numerous cases are recorded. Another circumstance which cannot fail to arrest attention is the excessive mortality attendant on this accident; how this result may be modified by ulterior observation, remains to be shown; it is, however, not improbable that the cases extant have been put on record chiefly on account of their fatal termination.

The frequent occurrence of jaundice, of petechiæ, and of extravasations of blood under the integument, or into the gastro-intestinal canal, are not the least interesting features of this singular affection. The physical qualities of the blood are also worthy of notice: it is frequently mentioned as being of a lighter colour than natural, and presenting no tendency to coagulate. The fœtal vessels, in some cases, are described as containing some *fluid blood.*

With one exception, the mode in which the blood escaped from the umbilical pit, when recorded, was uniform; it was an oozing, and generally it was difficult to decide during life, and even after death, from which of the umbilical vessels the blood issued; in Mr. Ray's case, however, it distinctly appeared to be supplied by the left umbilical artery.

In my own case, I have already mentioned that it came from a spot having an indistinct resemblance to the orifice of a vessel, but it was impossible for me to determine what vessel it might be. In the first case related by Dr. Campbell, the blood contained a large quantity of bile.

In none of the cases does the quantity of blood lost appear to have been considerable, but the difficulty of estimating this loss with any degree of correctness must be very evident.

In the majority of the cases a remarkable uniformity was observed to exist in the post mortem appearances in the fœtal vessels and ducts: these were constantly found to have undergone only an incomplete degree of obliteration. Upon this subject Mr. Ray remarks, that "little is said by authors respecting the period of change from fœtal to extra-uterine circulation, and the mode in which the fœtal vessels become closed." From his own observations, he is disposed to believe that it is by the gradual contraction of their coats, and not by the formation of a clot within them, that the obliteration takes place.

It is, however, but justice to Billard to state, that the changes which ensue in the fœtal vessels after birth were carefully investigated by

him some twenty years back, and the result of his observations was, that the mode of obliteration is not the same in the umbilical arteries and ductus arteriosus, as in the umbilical vein and ductus venosus: in the first it is a consequence of the thickening or concentric hypertrophy of their coats, aided by the contractility of the same. This hypertrophy Billard considers to be of an *active nature*, the blood being obliged to abandon these vessels in consequence of the organic changes which supervene in their walls: in the obliteration of the umbilical vein and ductus venosus no such hypertrophy is remarked. After the section of the funis, the parietes of these vessels collapse, their sides become contiguous, and thus their caliber is obliterated, in the same manner as obtains in all ducts, of whatever kind, when they no longer give passage to the fluids habitual to them.

This second mode of obliteration Billard terms *passive*, and is a result, not a cause, of the repulsion of the blood. Burdach, in his 'Physiology,' has also treated this question at some length; and there will be found references to several other writers, both of modern and less recent date.

With regard to the period after birth at which the fœtal vessels and ducts are closed,—notwithstanding some slight discrepancies which are observed to exist between the results of Billard's investigations and those of Bernt, and other writers mentioned by Burdach, still they are all agreed on one point—viz. that the process of obliteration *commences* as soon as the second or third day after birth. From this it is evident that, in several of the cases I have alluded to, this natural process was defective, and not sufficiently advanced.

Still more remarkable than the imperfect state of obliteration of the fœtal canals and ducts were the anatomical anomalies observed in the cases of icterus recorded by Dr. Campbell, and more particularly in two of them, where a total absence of gall bladder and bile ducts, or of these latter only, was found to exist. In no other case that I have been able to meet with is any allusion made to a malformation or deficiency of any part of the biliary apparatus. Moreover, as a general rule, the original deficiency or absence of the gall-bladder has only been observed as a rare occurrence.*

What the precise nature was of the structural change the liver had undergone in the second case related by Dr. Bowditch it is not easy to determine, from the very brief account he has given of it. There does not appear, however, to have been any malformation, and it is clearly stated that the gall-bladder was healthy, although contracted, and that the bile-ducts were pervious. From the peculiarities observed in the fœtal vessels at the umbilicus, in the case of Mr. Ray, and which are illustrated by a drawing, this gentleman is inclined to suppose that there existed some malformation at that part,—"a sort of common receptacle, in the form of a dilated artery, into which the umbilical arteries emptied themselves, from which the umbilical vein proceeded, and from which also the hæmorrhage took place through the umbilicus." It is, however, difficult to understand how the fœtus could have lived *in utero*, had any such abnormal communication

* Rokitansky, vol. xiv, p. 360.

between the umbilical arteries and the vein existed at the umbilical ring.

The treatment of this very unmanageable form of hæmorrhage has hitherto proved very unsatisfactory. The reports of the cases bear sufficient evidence to the utter inefficiency of ordinary hemostatics, such as compression, styptics, and caustics; even the actual cautery has failed. Moreover, from the short duration of the accident, we should not be warranted in placing much dependence on constitutional remedies alone. From these circumstances, it becomes an imperious duty on the part of the medical attendant to decide immediately between tying the bleeding vessel or vessels by cutting down upon them through the abdominal walls, or performing what is termed by French writers the ligature *en masse* of the umbilicus. The first of these operations has been advocated as a last resource by Mr. Ray, Dr. Radford, &c. It does not appear, however, to have been performed; and it is probable that, from its severity, and the difficulties attending it, many will be deterred from undertaking it. The ligature *en masse* is preferred to all other methods of treatment by M. Paul Dubois. It is executed in the following manner. A cushion is placed under the infant's loins to render the abdomen prominent. The operator introduces horizontally from left to right a hare-lip pin, which pierces the integument at the base of the naval. By means of a loop of thread passed under this pin, he raises the integuments, and a second pin is introduced perpendicularly to the first, and beneath it: the thread is then twisted several times in a figure-of-eight shape round each pin; and to complete the ligature, the base of the umbilicus is encircled with a waxed thread. The pins may be removed towards the fourth or fifth day, but nothing must be done to hasten the separation of the eschar, which must be entirely left to itself.

A similar plan was followed by Dr. Bowditch in the first case related by him. In two in which M. Dubois used it the hæmorrhage was arrested, and was not renewed, although the children ultimately died. The result was not so favorable in the case of Dr. Bowditch, when the oozing returned on the following day, and continued until death.

M. Dubois appears to place great confidence in this mode of tying the navel, and is of opinion that it has no tendency to produce peritonitis.

Burns* entertains a different opinion, and states that a ligature round the umbilical aperture, or the twisted suture, have not only failed, but appeared, by propagating inflammation to the peritoneum, to hasten death. However this may be, the ligature *en masse* will, I think, always be preferable to the far more serious operation of tying the bleeding vessel by cutting down upon it through the abdominal walls. And when we consider the more than doubtful utility of all other means, and the loss of time incurred in applying them, it appears to me that the only safe line of conduct would be to proceed immediately to tie the navel in the manner described, as offering the best chance that mechanical means afford of arresting the hæmorrhage. Unfortunately, however, as the observations show, in these peculiar

* Principles of Midwifery, p. 576.

forms of umbilical hæmorrhage, attended with other signs of a diseased state of the blood, no great reliance can be placed on mechanical means of whatever nature; and, as already stated, there is but little time and opportunity for the exhibition of constitutional remedies. Nevertheless, every practitioner, in presence of a case of this kind, will feel a strong desire, as much for his own satisfaction as for that of the friends of the patient, to arrest the hæmorrhage from the navel; and for this reason principally do we advocate the ligature *en masse* in preference to the tying by incision.

Art. 102.—*Differential Diagnosis between Eclampsia of Infants and Epilepsy.*

In an essay on the above disease, M. Ozanam seeks to determine the question whether infantile eclampsia and epilepsy are different diseases, or merely varieties of one affection, the differences depending on the duration of the attack, and other modifying circumstances. Cullen considers the two diseases as identical. Beaumez, Vogel, Sauvages, are of the same opinion. The author considers the view as fallacious, and shows that certain differences exist which he tabulates in the following order:—

1. *Symptoms:—*

Eclampsia.	*Epilepsy.*
Precursory symptoms are frequent, such as somnolence, vomiting, constipation, peevishness, cries during sleep.	According to Georget, precursory signs were only seen in four or five out of one hundred epileptics. M. Beau, on the contrary, finds them in about half of two hundred and seventy cases.
The *aura* is never perceived.	Aura epileptica is, on the contrary, frequent, as are also hallucinations of sound, sight, and smell, sensations of cold, heat, &c.
The character of the convulsions is chronic, with preponderance of movements of extension. Contractions are little marked.	The convulsions commmence with contraction of the limbs, and are strictly tonic.
Frothing at the mouth is not commonly observed.	Frothing of the mouth habitual or even constant.
Face pale or red, more or less congested. Features not distorted.	Face always violently congested and livid; features hideously distorted.
Respiration generally frequent, having a peculiar character, that of a spasmodic dyspnœa. The infant inspires with difficulty, and the expiration is accompanied by a short and interrupted wail.	Respiration embarrassed or suspended during the attack; the plaintive cry is never heard.

The pulse is frequent throughout the attack.	The pulse is little accelerated even by the most violent paroxysm.
Intelligence may be entirely lost, but in some attacks it is preserved to a certain extent. Sensibility is often only blunted.	Intelligence absolutely abolished, excepting in some rare instances: the senses are dead to all impressions, so that violent injury may be done without its perception.
The duration of the attack varies from two to twenty minutes. Successive fits may occupy several hours.	Convulsions seldom last beyond three or four minutes. Successive fits may last an indefinite time.
After the attack the child falls into a sleep without snoring; respiration slow and deep; occasional convulsive twitchings; long plaintive moans.	Snoring followed by profound sleep. The child neither moans nor is convulsive.
Eclampsia generally appears at the age of dentition.	Epilepsy seldom appears before the second year.

2. *Consequences or Pathological Appearances.*

Meningeal apoplexy is frequent as a consequence of eclampsia.	Meningeal apoplexy is rare in epilepsy.
Paralysis frequently follows eclampsia, and is peculiarly obstinate. The paralysed limb remains atrophied.	Paralysis may occur after epilepsy, but it soon disappears and the limb is not arrested in its growth.
Infants generally preserve their intelligence.	Idiotcy and dementia are habitual sequences of confirmed epilepsy.

Archives Générales, Mars, 1850.

ART. 103.— *On the Treatment of Croup.* By W. B. KESTEVEN, M.R.C.S.

(*Medical Gazette*, June 21, 1850.)

[The following observations are a sequel to the author's paper on the diagnosis of croup, of which is published an abstract in our last volume, Art. 93.]

The first indication is to remove spasm; the second to arrest inflammation; the third to promote expectoration; the fourth to support the strength. In a case of well-developed croup, free and full vomiting is to be produced without loss of time, by which the first two indications will probably be fulfilled. The author prefers ipecacuanha for this purpose, as he has seen serious depressions arise from the use of tartar emetic. Another advantage in ipecacuanha is its aperient qualities. Provided the violence of the disease is not controlled by the vomiting, the author advises that depletion be had recourse to. For this purpose he agrees with Dr. Churchill in giving the preference to leeches.

Conjointly with the above measures, blisters, sinapisms or the hot sponge, as recommended by Dr. Leyhman, may be advantageously employed. The hot bath is also a powerful adjuvant.

If the attack is not completely cut short by these measures, they will moderate its severity and pave the way for other remedies, of which the best is calomel. This should be continued with ipecacuanha to keep up a mercurial effect. The earlier employment of mercury is useless or prejudicial. In very young children the hydrargyrum c. creta may be substituted. The mercurial treatment in the second stage is much assisted by blisters, or other form of counter irritation.

The fulfilment of the third indication that of removing false membranes and mucosities, is usually effected by the above measures. The effort of vomiting frequently causes their ejection, and the roughness of the breathing and cough is diminished. Supposing these measures to fail, it is still left to us to adopt the method proposed by Dr. Horace Green, which has proved so successful. Dr. Green applies to the glottis a strong solution of pure nitrate of silver on a piece of sponge fastened to a whalebone rod. Dr. Green is very careful that the salt shall reach *below the epiglottis*, and come in contact with the rima glottidis. The immediate effect is a paroxysm of coughing, whereby the pseudo membrane is ejected, and at the same time the nitrate of silver exerts its known beneficial sedative influence on the inflamed mucous membrane. It is only fair to state, that the writer has not yet had occasion to employ this remedy, but from the success attending its use in those cases which have been reported, from Dr. Green's statements, in its favour, and from the writer's own experience of its value in epiglottidis, and other pharyngeal affections, he should have recourse with much confidence to the topical application of nitrate of silver in croup. Since he has become acquainted with Dr. Green's plan of treatment, he has not met with a case that has resisted the previous treatment. But should such occur to him, he should lose no time before putting it in practice, and should certainly look for happier results than from the desperate alternative of tracheotomy.

In discussing the third indication of treatment, it is necessary to consider the question of tracheotomy. In a former communication, already alluded to, it was shown that the essential danger of croup consists not more in the occlusion of the rima glottidis by lymph or mucus, than in the violent spasmodic action of the muscles of the larynx.

If the spasm be arrested at the out set, the inflammation, persisting, extends to the trachea, bronchi, and air-cells; it is no longer singly croup that is to be encountered; and although it is impossible to state the precise degree of this extension of morbid action, its probable existence, and the consequent little influence to be exerted on it by tracheotomy, are strong reasons against incurring the undoubted danger from syncope, convulsions, hæmorrhage, asphyxia, &c., attendant on this operation.

Although, in England, at least, the small results which have followed the performance of this operation in croup hold out little encouragement to its repetition, it cannot be denied that there may be cases in which, where the spasmodic action having been subdued, the

inflammation continues fixed in the larynx, despite all treatment, and in which it would be right to give the patient at least a chance of his life by its performance.

But it must be borne in mind, that, for the reasons above given, tracheotomy is not had recourse to generally until the constitution is greatly debilitated by the active antiphlogistic measures which have been employed. This is a very important circumstance to be borne in mind, in calculating statistically the results of the operation, and, as before stated, is by some regarded as sufficient to account for its failure. Another circumstance, however, must not be omitted, in considering this part of the question. Sufficient care has not always been taken to ensure an equable and warm atmosphere in the chamber in which tracheotomy has been performed. This, indeed, from the condition in life of many patients, it is impossible to ensure; and, from the urgency of the case in most instances, it is not possible to wait the attaining.

Another point of great importance has been much neglected in reference to the treatment of croup; and that is, the use of moist air.

In September, 1845, Dr. Golding Bird read a paper at the Medical Society on the treatment of disease by moist air. The writer's attention was thereby directed to this therapeutic adjunct, and has found it one of very great value, not only in croup, but in other inflammatory diseases of the respiratory organs of both children and adults.

The bed-room must be rendered secure from draughts by stopping the casements of the window and closet-doors, &c., and by hanging a sheet or blanket on the outside of the door, so as to prevent the admission of currents of cold air during the ingress and egress of the attendants. A large fire is to be kept constantly burning, and a large kettle with a long spout, or with the addition of a piece of gas-pipe, is to be kept continually boiling, so that a current of steam is constantly issuing from its spout into the bed-room. A spout several feet in length, and of an inch bore, may easily be fitted to a common tin kettle for this purpose.

The temperature of the room should be from 70° to 78°; but in winter it is found scarcely possible to heat an ordinary bed-room above 70. It is as well to suspend a thermometer near the centre of the bed, in order by its indications to maintain a regular temperature, which is by no means difficult with ordinary care. Indeed, as Dr. Bird observes, "it is remarkable how little the thermometer varies" under the circumstances.

The importance of promoting the depurating action of the skin, both in health and disease, and most especially in acute inflammatory complaints, is well known; and here is a means by which that end is obtainable. The writer well remembers the very speedy and marked benefit which he obtained by this means in a case of pleuritis under his care. The skin had remained dry and harsh, the disease was little controlled, and effusion had taken place into one pleural sac. The employment of moist air effected a rapid improvement in the symptoms, and from the hour of its employment was dated the recovery of the patient.

Its influence will be seen in the decrease of the dyspnœa, and a diminution in the violence and frequency of the cough. The genial

temperature has a soothing effect on the surface of the body, and the warm moist air is less stimulating to the larynx, and other air passages. Free perspiration is speedily induced, and continues. The writer's experience fully accords with the statements of Dr. Bird which he has quoted,—so much so, that he would desire that he may never have to treat a case of croup without at the same time possessing the means of obtaining a full supply of warm moist air wherewith to charge the atmosphere of the patient's chamber.

The best indication,—that of supporting the powers of the patient, so as to enable the constitution to bear the effects of the disease, and of the treatment,—is to be kept in view and acted upon concurrently with the other indications. This indication becomes in some cases one of considerable difficulty. The disease and the remedies between them have depressed the powers of the constitution, and the latter has not the capability of throwing off the disease. The plan of treatment is obvious enough,—the result too doubtful, and dependent to a great degree on the skill of the attendants. Stimulants, as ammonia, wine, &c., must be given, according to the state of the heart's action, and any benefit which is to be derived from them is only to be obtained by their cautious administration, pulse in hand, for many hours together. It is, however, to be feared, when things have come to this pass, that the effects of inflammation have pervaded the respiratory organs to too great an extent to permit the due aeration of the blood for the sustentation of the vital process.

It will be observed that the author has here spoken only of one form of croup, and has not alluded to the treatment of "inflammatory" as distinct from "spasmodic" croup,—of "primary" from "secondary" croup,—or of many other varieties which are met with in books. He has done so, because, as remarked in his previous communication, he considers that these have arisen out of the want of precision in diagnosis. He has regarded them as several phases of true croup, or as forms of disease differing in their seat and in their nature. For these reasons he passes over their separate treatment, and consigns them to their appropriate treatment as tracheitis, laryngitis, laryngismus, &c., looking upon croup itself as a distinct disease, comprising an inflammatory and a spasmodic element, presenting many shades of severity, and requiring a careful adaptation of treatment, though on uniform principles, to each individual case.

ART. 104.—*On Purulent Discharge from the Aural, Nasal, and Vaginal Passages, as a sequelæ of Infantile Diseases.* By THOMAS WEEDON COOKE, Esq.

(*Lancet*, July 13, 1850.)

[After alluding to the little notice taken of these affections by systematic writers, the author proceeds to speak first of a purulent discharge from the ear, he observes:]

Scarlet fever, measles, remittent fever, and occasionally hooping-cough, sufficiently destructive as they are in themselves, mowing down weekly sometimes a fourth of the children that are born, are still more dire in the evil after-effects they produce; rendering a previously

healthy child a miserable, puny creature; tiresome and unhappy itself, and a source of painful and anxious concern to its parents. For a longer or shorter period this state of things is allowed to continue without any supposition that medical aid is necessary—the cross temper of the child being looked upon by some as an indication of returning health; and that, consequently, the *vis medicatrix naturæ* will do all that is needful. The infant, however, continues peevish, restless at night; its appetite is capricious; it wastes; the mouth is hot, the lips are dry, the eyes unnaturally bright, and the head becomes burdensome, so that the poor little creature is often glad to rest for a time from its continuous moan by laying its head in its mother's lap. In this stage two things may occur; either the cerebral irritation will increase, and sub-acute inflammation of the brain or its membranes be set up, (with which we have at present nothing to do,) or the membrane lining the external auditory passage will begin to secrete a puriform discharge, varying in its consistency according to the strength of the subject of it, being sometimes very nearly laudable pus, but more frequently approaching the flour-and-water-looking fluid of the true scrofulous diathesis, not unfrequently having a bloody tint, and exhaling an odour such as scrofulous secretions only are capable of producing. This discharge being set up, the head symptoms become relieved, and there is less of the peevishness which was previously so distressing. Some slight treatment in the shape of warm water injections into the ear is directed; an opening powder or two are prescribed, the ear is plugged with cotton wool, and there the treatment ends; until the ulceration of the external canal extends to the tympanum, eats through it, and running into the internal auditory passages, and destroying the auditory apparatus, produces caries of the temporal bone, abscesses within the cranium, and, as a consequence, the loss of hearing, convulsions, sometimes paralysis of the facial nerves, exfoliation of bone, and certain death. These are the frightful consequences of a neglected purulent or strumous discharge from the ear, coming on after some great disturbance of the system, such as that arising from an attack of fever—eruptive or otherwise. Frightful indeed to witness, most painful and unsatisfactory to treat, after the suppurative process has gained the internal ear, but entirely under surgical control whilst it is confined to the outer side of the tympanum.

In the treatment of this very distressing and important sequela of the exanthemata, I have almost invariably found it necessary to support my little patients with a nourishing diet, including a modicum of animal food, in some form, once a day; whilst I have thrown into the system as much of the sesqui-oxide of iron as the stomach could take without discomfort. I am partial to this form of administering iron to children, because they take it very well in treacle or honey; and although I have used iron largely in all forms, I am positive not with the same beneficial results that have been obtained from the old red carbonate, as it used to be called. As an injection, I never have occasion to use anything but a solution of sulphate of zinc, from three to five grains to the ounce, and this it is necessary should be so injected that it may reach the tympanum. General cleanliness, free ablutions of the whole body, sea-bathing, and out-of-door exercise

are, of course, at all times, highly conducive to the restoration of diminished power of life, such as this suppurative discharge loudly indicates.

Before quitting this part of my subject, I may mention that it is in the advanced stage of this affection of the ear, when the tympanum is destroyed by ulceration, that the glycerine is found serviceable.

The suppurative discharge from the lining membrane of the nostrils is likewise a sequela of the exanthemata, but one neither so constant or important, although equally as disagreeable, as that from the ceruminous membrane of the ear. In some cases there is a constant flux of muco-purulent matter, occasioning a constant sniffling and blowing of the nose; in others, the muco-purulent matter hardens, and collects in very large scales, which irritate for a long time, and after much blowing come away in huge masses. Upon careful examination the Schneiderian membrane will be found denuded in some parts, and in others (especially that lying over the turbinated bones,) thickened and inflamed; sometimes the discharge has a very offensive odour, and sometimes not, and this will be the case with the same child at different periods. I have now cases before me exemplifying these variations. It has never occurred to me to see any formidable evil result from this affection of the nostril in children, but I can call to mind many cases in adults where a chronic inflammatory condition of the Schneiderian membrane has been allowed to go on until the turbinated bones, and even the vomer itself, have become carious; and who shall say but that timely surgical aid would have saved the nose and averted the misery of many a now disconsolate mortal. With children suffering from this affection, I have pursued the same plan which I employ for discharges from the ear—supporting tonic treatment, meat, and iron, and the sulphate of zinc injection; that failing, I have used the red nitrico-oxide of mercury ointment, melted, and introduced by means of a small mop, and, in very obstinate cases, one or two applications of the nitrate of silver ointment of Guthrie have effectually healed the ulceration.

In approaching the consideration of discharges from the vagina, I cannot but remember how large an attention this subject has received from some of the most distinguished members of our profession, and what stories we have heard of the sad consequences of attributing this very common and innocent affection to causes which, happily, are but of rare occurrence in this country. The muco-purulent discharge to which little girls are obnoxious, is as frequently to be traced to the exhaustion produced by fever as are those other fluxes previously spoken of. There is the same flaccid condition of the muscles, the same peevishness and constant restlessness; in general a disinclination for food; the bowels are inclined to be confined; the pulse is quick and weak, and the tongue is coated with a whitish fur. These general symptoms are accompanied by some redness around the nymphæ; the discharge is profuse, slightly yellow, full of pus globules, and occasionally acrid, since it produces excoriation, if the nurse be not very cleanly. It is very rare that the child has ardor urinæ—a symptom which would be looked for if gonorrhœa were expected, and which, together with laceration or ecchymosis, would be the only signs by

which the surgeon could positively conclude that a criminal attempt had been made. The large number of cases of this sort which have come before me is surprising, and equally so the unanimity of their histories. All these patients have, but a short time before, recovered from some of those febrile disorders whose sequelæ are so often neglected by parents, and the consequences of which are more fatal than the parent disease. Happily, the expectant timid treatment commonly pursued in the two forms of the same disease already discussed, has, in this particular instance, not been followed, owing partly to Sir Astley Cooper's example, and partly, I suspect, to the parts affected being considered less susceptible of injury. I believe that the zinc injection, or one composed of Goulard extract and water, together with iron, and an occasional aperient, is as universally the plan adopted as my experience would lead me to hope for; whilst my out-of-door exercise, and good nourishing diet, will be acknowledged as necessary as in the other forms of this very disagreeable and sometimes dangerous malady.

In tracing the history of these affections of the mucous passages, it has been already said that they are to be found following some exhaustive fever, and very frequently accompanied by the presence of worms in the intestines. This latter circumstance led to the inquiry, if there be any truth in the commonly received opinion, that the irritation produced by the presence of parasites in the intestines was sufficient to account for the discharges mentioned? I conceive that this opinion cannot be held, inasmuch as ulcers are constantly seen in various parts of the body, produced by poorness of living; and we likewise know that it is only in the intestines of weak children that parasites retain their hold. Both the suppurative discharge and the worms may, and do, exist together, but not as cause and effect; the origin of both must be traced to the atrophied condition of body produced by the wasting fever.

In concluding these few crude remarks upon a class of diseases which has no place or name in any nosological table, and which has been generally looked upon as unworthy of much consideration, I would beg to urge the evil results arising from an absence of early treatment as a cause why we should not overlook things apparently, and only apparently, so trifling. Allow an ulcerated condition of the aural, nasal, and vaginal membranes to continue unchecked, and you will certainly lay the foundation for deafness, loss of the sense of smell, disfigurement of the features, incurable cerebral disorders, and all those distressing diseases to which the internal organs of generation in the female are from so many causes peculiarly obnoxious. One great cause of neglect I believe to have arisen from a fear, lest in treating these discharges from delicate passages in the same manner we do indolent asthenic affections of the body generally, some fancied but undefined ill should arise to the organ itself, or that by suppressing the discharge, neighbouring parts, equally important, should become congested. This fear, I beg to assert, after much careful experience, is not warranted by facts, whilst the magnitude of the evils resulting from non-interference is daily demonstrable.

Art. 105.—*On Goître in New-born Children.* By Dr. Betz.

(*Henle und Pfeufer's Zeitschrift,* bd. ix, heft 2 and 3, and *London Journal of Medicine,* November, 1850.)

Goître, in new-born children, is a disease as yet little noticed. The children affected with it are generally fat, and well nourished. The Goître sometimes has the form of a swelling resembling the thyroid gland, stretching across the neck, and liable to be mistaken for a simple fold of fat; sometimes the neck only appears broader than natural; and sometimes no remarkable appearance is observed. The symptoms to which it gives rise are difficulty of breathing soon after birth; inspiration is prolonged, accompanied with a moaning tone; expiration is also difficult, and sometimes accompanied with crying; sometimes the breath is entirely arrested, and there is danger of suffocation. In the more severe cases, sucking is impossible, or very difficult; it induces dyspnœa, which also results from the mere act of drinking. The dyspnœa, or rather asthma, comes on in paroxysms. The Goître consists in a simple hypertrophy of the thyroid gland; sometimes the whole is affected, sometimes only the two lateral lobes, sometimes only one lobe, or even only the apex of one. The swollen lobes penetrate behind the commencement of the œsophagus, or the pharynx, press these on the larynx, and, at the same time, by means of the tumour which they form at the back of the throat, narrow, more or less, the glottis; hence the dysphagia, and danger of suffocation. The affection seems to be hereditary. The so-called *asthma laryngeum* depends, in many cases, on hypertrophy of the thyroid gland; and many cases of atelectasis of the lungs may arise from this cause. When the danger is imminent, Dr. Betz applies leeches to the thyroid gland, administers an emetic, and orders the mouth to be diligently washed out; in chronic cases, he employs iodine internally and externally.

REPORTS

ON THE

PROGRESS OF THE MEDICAL SCIENCES,

July—December 1850.

The intention of the following Reports is to pass in review the principal additions to each department of Medical Science, which have been placed on record during the preceding six months. It is not contemplated that they should be confined exclusively to the notice of what is new; any fact or doctrine which may be considered practically useful, will, although not strictly novel, be regarded as worthy of commemoration. It must be obvious to all who are aware of the immense mass of information which is almost daily put forth by the medical press of this and other countries, that the notice of every subject would be an impossibility. It therefore devolves upon the writers of each Report, to select only such articles for retrospection as may possess superior recommendations, either of an intrinsic character, or in relation to the main end and aim of all medical knowledge—the alleviation of suffering and disease.

I.

REPORT ON THE PROGRESS OF PRACTICAL MEDICINE, PATHOLOGY, AND THERAPEUTICS.

BY THE EDITOR.

BIBLIOGRAPHY.

We commence the present Report by the notice of certain works, recently published, which have for their object the concentration of the light afforded by the collateral sciences, upon the study and practice of medicine. Of such works we shall mention first a volume by Dr. Bence Jones, entitled, '*Animal Chemistry in its application to Stomach and Renal Diseases.*'

This treatise is composed of twelve lectures, delivered at the Medical School attached to St. George's Hospital. The first of these treats of food in the abstract, and points out its varieties, necessary constituents, variations of these in different classes of diet, and its relations to the great functions of respiration and nutrition. The second embraces the subject of digestion, which is described as a threefold process; that of solution, absorption, and assimilation. The nature of the gastric juice is likewise given, and its action on nitrogenized and unnitrogenized food explained. The third chapter gives rules for the analysing blood, and contains an account of the examination of this fluid of two gouty patients, which proved that it contained uric acid. Chapter four presents us with an account of the various forms of urinary calculi, and concludes with an useful analytical table for these examinations.

Lectures five, six, seven, eight, and nine, are occupied with the various acids and salts contained in the urine; of these, the eighth contains the author's observations on the variation of the amount of phosphates in disease.

The abnormal products, albumen and sugar, are next considered in lectures ten and eleven; and the author concludes with a chapter on the relation of the urine to the food and animal system.

Dr. Bence Jones is doubtless so well known to most of our readers as an enlightened medical chemist, that it is scarcely necessary to recommend his lectures as a safe and useful guide in the study of the subjects of which they treat.

—Dr. Bowman's '*Practical Hand-book of Medical Chemistry,*' is a work of the same nature as the above, but is somewhat more comprehensive, as it not only includes the chemistry of the various solids and fluids of the human body, but also contains concise rules for the detection of poisons in organic mixtures. The favorable opinion we entertain of this little volume as a chemical companion, is expressed in our last volume, p. 350.

—Several other works on the different subjects embraced in this report, have been forwarded to us. Notices of these will be found under the several sections to which they may be referred.

PART I.—GENERAL PATHOLOGY.

Two courses of lectures of great merit are now in the course of publication. One of these, entitled '*Lectures on General Pathology*,' by Mr. Simon, appears in the pages of the 'Lancet;'* the other, '*Lectures on Blood Diseases*,' is by Mr. Ancell, and is published in the new series of the 'Medical Times.' Mr. Simon's lectures are of too comprehensive a nature to be considered in detail, but a general idea of their scope may be given by the following recapitulation of their contents.

The lectures are twelve in number. The first, being introductory, embraces the definition of disease. The second and third treat of blood in disease, and its modification from superaddition, as in the case of morbid poisons and foreign bodies; diseased conditions from error in excretions; and thirdly, from intrinsic metamorphoses of the blood. In the fourth, fifth, and sixth lectures we have, error in distribution of blood, as congestion, and active hyperæmia; hypertrophy, atrophy; changes of consistence, as induration and ramollissement; fibrinous effusions, &c.

Tumours of various denominations are minutely described in lectures seven and eight; lecture nine is occupied with scrofula; the tenth with the general pathology of nervous diseases; the eleventh with the rationale of certain medicinal agents; and the last, with the history of morbid poisons and the theory of infection. The reader may thus observe the importance as well as the extent of the subjects treated of by Mr. Simon; and will, we trust, be induced to give them the careful study they so justly deserve.

Of Mr. Ancell's lectures we shall speak at a further page.

§ I.—*Zymotic Diseases.*

1. *Fever, Typhus and Typhoid: Question of Identity.*—We allude to this subject for the purpose of announcing that the valuable papers of Dr. Jenner, quoted in our last volume, p. 204, and in vol. ix. p. 227, have appeared in a separate volume.† Regarding, as we do, Dr. Jenner's remarks as the most important that have ever been published on the point disputed, we consider their appearance in the present form as likely to be very acceptable to the profession.

2. *Febrile Diseases in general, treatment of, through the cutaneous surface.*—This is the title of a little volume recently published by Mr. Taylor,‡ Surgeon to the Clerkenwell Infirmary, in which he most strenuously advocates the great advantages to be derived in all types of fever, in scarlatina, measles, &c., by the free inunction of the surface with a form of ointment consisting of equal parts of lard and suet. We have perused this little work with great interest, more particularly as the remarks by Dr. Schneeman (Vide supra, Art. 5,) had previously arrested our attention.

It appears that as far back as 1829, the author observed that patients ad-

* Since published in a separate form, entitled 'General Pathology, as conducive to the Establishment of Rational Principles for the Diagnosis and Treatment of Disease.' London, Renshaw.

† The Identity or Non-identity of Typhus and Typhoid Fever, by W. Jenner, M.D. London, Churchill.

‡ New and Successful Treatment of Febrile and other Diseases, through the medium of the Cutaneous Surface, by William Taylor, M.R.C.S., &c.

mitted with the itch, who were at the same time subjects of fever, were materially benefited as regards their febrile symptoms by the sulphur inunction. He at first attributed this to the medicines simultaneously employed, but having subsequently seen the same benefit where no internal medicine had been exhibited, he determined to investigate the matter experimentally. The result was beyond his expectations, not only in various fevers, but in some other forms of disease.

In describing the effects of this treatment he observes, that it reduces the force and frequency of the pulse, and when employed early, wards off the typhoid condition. The dry and brown tongue disappears with the saturation of the skin. The patient generally falls into a sound sleep, and delirium subsides; and, in fact, all the symptoms improve with a steadiness and rapidity not seen in other methods of treating fever.

The rubbing in is advised to be performed twice a day, or oftener, according to the severity of the case.

The book consists of an introductory chapter, a chapter on the physiology of the skin, chiefly made up of extracts from Armstrong and Erasmus Wilson, and eight chapters, in which cases are given illustrative of the treatment in inflammatory fever, in typhus, scarlatina, measles, dropsy, phthisis and insanity. We trust that the author's observations may induce others to test this mode of treatment; it can do little or no harm, and if it be really found to merit the eulogies bestowed upon it by the author and Drs. Schneeman and Mauthner, the former will have the merit of having originated a most valuable therapeutical resource.

3. *Fever—Treatment in and out of Hospitals.*—A question of great importance, that of the advantages or disadvantages of fever hospitals was touched upon in our last report, on the occasion of noticing a lecture by Dr. Christison. The same subject again claims attention in the form of a valuable statistical paper by Mr. Adams of Glasgow, in which the results of treatment of fever in hospital and out, are compared.* The author had remarked that the mortality in fever hospitals greatly exceeded that of out-of-door practice; and having ample opportunities at command, he has undertaken to inquire whether the excessive mortality is invariable or only occasional; if dependent upon local and appreciable causes; and if it be capable of removal.

In following out these investigations, he brings together a large amount of statistical data, a comparison of which will admit of the following deductions:

It appears, in the first place, that the mortality is greatly dependent, as might be expected, on the type of the fever, and on the duration of the disease prior to treatment. It is rendered very evident that the fatality is much diminished, both in and out of hospital, when the disease is treated early, and, *vice versâ*, it is increased when many days are allowed to elapse without medical aid.

The mortality of hospitals is rightly ascribed mainly to the aggregation of the patients; the evil effects of which are even visible in other patients, not the subjects of fever; but it is also to be ascribed, in a secondary degree, to the depression consequent upon removal from home, and to the fatigue caused by the act of moving.

While he admits the increased mortality of fever hospitals, the author is satisfied that these institutions must at present be regarded as necessary evils, but he hopes to see the day when a better system of public sanitary surveillance shall render them superfluous.

* The Results of Treatment of Fever in Hospitals and Out-of-Doors. Edinburgh Monthly Journal, Aug. 1850.

4. *Mercurial Treatment of Fever.*—M. Serres some years since presented a memoir to the Institute on the treatment of typhus by mercury (see Abstract, vol. VI, 219) in which he placed the results in a very favorable light. M. Becquerel, being appointed his successor at La Pitiè, has carried on the treatment, and subsequently has given a report of his success.

In the first place, he recalls the treatment adopted by M. Serres, which consisted in giving æthiops mineral internally in doses varying from fifteen grains to half a drachm in the day, and a mercurial inunction. This was continued either until salivation ensued or convalescence declared itself.

The result of the frictions was stated to be the rapid disappearance of the rose spots. The diarrhœa was also improved, and the pulse was considerably diminished in frequency; the headache and delirium were also relieved. The duration of the disease was not much curtailed. M. Becquerel states that he has rigorously adopted the same plan, and that he has been even more successful than M. Serres. In addition to the mercurials, he allowed iced Seltzer water and simple enemata. Fifteen patients, ten men and five women, were submitted to the treatment.

The ten men were attacked with typhus fever presenting the following forms: —four, the ordinary abdominal form, with stupor, headache, &c.; five, the most severe adynamic form; one, the intermittent form, with delirium and violent agitation. The five women presented two cases of the intermittent form; one of the intermittent adynamic form; and one the adynamic form alone; and one the ordinary abdominal form. These fifteen patients had all been a certain time in a more or less severe state of suffering previous to admission into the hospital. In each case the treatment was commenced on the day after their admission. The following is an account of the effects produced on the principal symptoms, and on the *ensemble* of the disease:—

Fever.—Under the influence of the first doses of the black sulphuret, and the first frictions, the skin became less hot and dry, and in some cases was slightly moist from perspiration. At the same time, the pulse diminished in strength and frequency; this effect was also produced in the only case which terminated fatally in consequence of intestinal perforation.

The tongue, at first dry and rough, and the gums and lips of a sooty colour, did not lose their characteristics until salivation supervened. Salivation occurred in twelve cases; none was produced in two cases which were equally as well cured; in each of these two cases the tongue remained quite dry until the fever ceased. In the case of intestinal perforation the tongue remained dry throughout. In the twelve cases in which salivation was produced, it took place in two cases on the sixth day of treatment; in three cases on the seventh; in four cases on the eighth; in one case on the twelfth; and in the other case on the thirteenth day. Except in one case where the salivation and swelling of the gums took twelve days to remove, and was very considerable, it was in all the others slight, and of but little importance. In every other case it did not continue more than four or five days, and required no particular treatment.—As for the salivation, the author states that the following propositions may be considered as established: 1. In the case of ordinary typhus fever of moderate severity, salivation shows itself more rapidly; it is stronger, and continues longer during convalescence. In general, it announces the approaching arrival of convalescence. 2. In the most severe cases, salivation takes longer time to produce; it is generally less intense, and continues no longer than the first days of convalescence; it precedes by a few days the cessation of the fever, and constitutes a sign of approaching restoration to health. Sometimes however, it does not appear until the entire cessation of the febrile symptoms.

3. In the extremely severe cases salivation is with great difficulty produced; and as long as it does not arrive, more or less dangerous consequences may be feared. In such a case we must not be discouraged, but continue for a longer period increased doses of the sulphuret and the mercurial frictions. 4. In some cases of moderate severity salivation does not occur at all. In each of the fifteen cases the treatment was always continued, not only up to the appearance of the salivation, but up to the time of the cessation of fever, and the amelioration of all the symptoms.

The swelling of the abdomen, except in the case of intestinal perforation, has constantly diminished with great rapidity, and that from the commencement of the treatment; it is to the combined influence of the employment of the sulphuret and the mercurial frictions that the result must be attributed.

As to the *stools*, out of the fifteen patients there was constipation in two cases, which enemas alone were able to remove; the sulphuret was without effect in removing it. In two other cases the sulphuret produced diarrhœa, which did not previously exist, and which, since its employment, induced one or two liquid stools daily. In three cases the characteristic diarrhœa which occurred on their admission sensibly diminished as soon as a few doses of sulphuret were taken. In eight cases the diarrhœa neither increased nor diminished; it took its course, and diminished only at the same time that the other characteristic symptoms of the disease abated.

In every case the mercurial frictions were made on the abdomen, the red spots disappearing in the space of 24 to 36 hours; no others appeared but those which occupied the base of the thorax, on the breast, or elsewhere.

As to headache, no particular effect was remarkable in either of the cases; in fact, it did not constitute any leading feature.

In those cases where violent delirium existed (in four patients) from 25 to 30 centigrammes of musk was combined with the black sulphuret, and this dose continued until the cessation of the symptoms. In these four cases the improvement was rapid, and five days was the longest period in which it was found necessary to exhibit the musk in combination with the sulphuret. In one case it was found advisable to use cold water applications to the head; the delirium was very violent, and a strait-waistcoat was applied.

An aspect of stupor in the countenance did not disappear until an improvement had manifested itself in the other symptoms; the sulphuret produces no immediate effect.

The same may be said of the *cough, &c.*, and there were no apprehensions of any serious consequences to the chest. The patient must perhaps be excepted who fell a victim to intestinal perforation on the twentieth day of the disease, and who at his admission presented the characteristics of very intense bronchial engorgement.

On this symptom the mecurials acted only by the influence which they exercised on the *ensemble* of the disease. In no one case were there any serious hæmorrhages.

The duration of treatment was in four cases 7 days, in three cases 8 days, in one case 9 days, in three cases 10 days, and one each 11, 12, 15, 16, and 17 days respectively; the mean time was 10 days. The minimum quantity of black sulphuret employed for the whole treatment was 7 grammes, and the maximum 24 grammes; the minimum quantity of mercurial ointment employed was 112 grammes, and the maximum 360 grammes; the mean quantity was 12·30 of sulphuret, and 200 grammes of mercurial ointment.

The total duration of the disease varied from 12 to 23 days; the mean duration of the disease—that is to say, of the fever—was 16 days.

Duration of convalescence.—In all the cases this was very simple, proceed-

ing uninterruptedly, and without any relapse. In the case of one woman attacked with a most intense adynamic fever, there was sloughing of the sacrum, which required a month to cicatrise. Omitting this case, and reckoning from the time of the cessation of the fever, the patients remained at the hospital from eight to twenty-three days.*

5. *Cholera.*—With the departure of this fearful pestilence, has ceased, in a great measure, the inundation of writings which signalized its presence. There have been, however, some few works published since our last report, which require to be notice.

—Dr. J. Simpson† has contributed some observations in support of the contagious nature of cholera, and its dependence upon an animal poison. His remarks are deficient in originality, being chiefly drawn from the writings of his predecessors, especially Kennedy, Orton, and the article "Pestilence," in Copland's Dictionary.

—Mr. Whittle,‡ in a pamphlet, expresses his belief that the disease is a congestive fever, and advocates venesection as a main element in the treatment. Next to this agent he places most confidence in calomel, in larger doses, and at longer intervals than is recommended by Dr. Ayre.

—Dr. Bushnan,§ in a work recently published, gives a historical sketch of cholera, from its origin to the present time, urging, in a particular manner, its connection with the numerous anti-hygienic influences by which we are surrounded. He also presents us with an epitome of the legion of *cures*, which have from time to time been put forth by men of more zeal than intelligence, and concludes with a panegyric upon the saline treatment of Dr. Stevens.

—Mr. Cox,‖ in common with the general opinion, regards Asiatic and English cholera as distinct diseases. He adopts the theory of the former, which we have noticed in a former volume, as maintained by Dr. Blacklock, of Dumfries, viz., that the mucous membranes of the intestines becomes positive by the agency of irritation of semilunar ganglia, while the gastro-pulmonary mucous membrane becomes intensely negative. His main reliance in treatment is upon Dr. Ayre's plan of giving calomel. He considers that stimulants should be given with caution, and that opium is never serviceable.

—Dr. Wright,¶ in an elaborate report on the cholera, as it showed itself in West York Lunatic Asylum, has reproduced his views on the pathology of the disease, as published by him in the 'Lancet,' February 1833. He there endeavours to prove by synthetical reasoning, that the primary impression of the exciting cause is upon the ganglionic system of nerves, inducing paralysis of its functions, whence he traces, as secondary effects, the diarrhœa, cramps, &c. The truth of his theory is, he thinks, borne out by the result of those methods of treatment which have proved most successful.

—In addition to the above works, we have received the 'Report of the General Board of Health on the Epidemic Cholera of 1848-1849,' together with Appendix A. and B. The extent of this undertaking precludes analysis;

* Archives Générales, and Medical Gazette, Oct. 18, 1850.

† Observations on Cholera, and Facts regarding its Mode of Diffusion, by T. Simpson, M. D. London, Churchill, 1850.

‡ On Symptomatic Treatment of Asiatic Cholera, by Ewing Whittle, Esq., M.R.C.S. London, Churchill, 1850.

§ Cholera and its Cures. A Historical Sketch, by Dr. Bushnan. London, Orr and Co., 1850.

‖ The Cholera, what has it taught us? its Various Modes of Treatment Examined, and that by Calomel shown to be the Best, by A. Cox, M.R.C.S.

¶ Reports on Pestilential Cholera as it appeared in the West Yorkshire Lunatic Asylum, &c., by Dr. T. G. Wright. London, Longmans, 1850.

but an attentive perusal of its contents justifies us in saying, that, while we differ from the opinions expressed in some particulars, it is entitled to be considered as a most important, as well as authoritative history of the recent visitation.

—The Report on Cholera, which has emanated from the Provincial Association, must not pass unnoticed, although it must be allowed, that in scope, it is not altogether worthy of that important body of practitioners. Dr. Williams, of Worcester, who has charged himself with the task of editing the observations of the respective contributors, has arranged them under the following heads. 1. The Nature of Cholera—Its History—Mode of Diffusion —Treatment and Prevention.

As to the *nature* of cholera, it seems to be generally admitted to depend on a specific virus, but there is a doubt as to the usual mode of its reception into the system. It is thought to be communicated in a threefold manner; first, by the atmosphere—secondly, through the medium of clothing—and thirdly, by the evacuations.

The precise character of the poison is not agreed upon by the contributors, but a very general impression appears to have prevailed, that it is intimately connected with cess-pools, burial-grounds, &c. The reporter judiciously observes, on this point, that the anti-hygienic influences alluded to, should be regarded as predisposing causes only, and that no other essential link between the circumstances alluded to and cholera can be established. Nothing has transpired to show whether the poison is of an animal or vegetable nature.

The history of the disease, as supplied by the Association, represents it as prevailing more or less during the months of June, July, August, September, and October. It generally appeared in the same localities as were attacked in 1832, but the curious fact was noticed in some cases, that while it reappeared in 1849 in some parts which had been improved since 1832, it did not occur in others which remained in *statu quo*.

The course of the disease could not be accounted for, either by atmospheric peculiarity, contact with the sick, or state of constitution. The mode of attack was variable, and the disappearance of the disease as mysterious as its origin and progress.

One general fact which may be safely received, is, that a large majority of attacks occurred in individuals of unquestionably debilitated habits, from whatever source the debility came.

No useful information is afforded as to the influence or connection of premonitory diarrhœa with malignant cholera. It was not easy to say whether, in some instances, the diarrhœa was part of the subsequent disease, or whether it merely acted on any other debilitating agent in rendering the patient more susceptible of the choleraic virus.

An important result of this inquiry is, that cholera is undoubtedly communicated through the atmosphere, the clothes, and the ingesta.

As regards treatment, the information afforded in this report is painfully illustrative of the want of a sound logical instruction in our profession. If we are to believe the authors, every method was successful and every method failed. One practitioner loses fourteen out of sixteen cases; another only one of two hundred. The reporter remarks judiciously on these contradictory statements, "That the only conclusion, justified by reason, is, that there are many cases, especially at the commencement of choleraic visitations, in which the poison is so intense, that nothing can resist its withering influence, and the prostration so great that nothing can restore the stricken energies. That there are other cases in which the poison, being of a less malignant character, or the patient's constitution less yielding, the disease, judiciously treated, may be

checked by any method, and that there is a third class of cases in which early treatment does not prevent the progress of the malady, and yet the patient may gradually recover, and return, as it were, from the brink of the grave."

The latter class of cases recovered, in his belief, and we may say in our own also, not because of the medicine given, which at all events failed in preventing the case from proceeding to extremity, but because the virus had exhausted itself, and just power enough was left to enable the patient to struggle back to life.*

—The contagious nature of cholera has been again exhibited in unmistakeable characters by Dr. GRAVES, in a paper recently published in the 'Dublin Quarterly Journal' for November 1830. The numerous instances adduced by him in which the disease had been transported to a distance through communication with the sick, are of the most conclusive character.

§ II.—*Diseases of the Blood.*

6. *Tuberculosis.*—A very masterly exposition of the pathological history of this variety of depraved blood-constitution is afforded by our late collaborateur, Mr. ANCELL, in his important scries of lectures on "Blood Diseases," now in course of publication. †

Tuberculosis is treated of by Mr. Ancell in a light somewhat different to that generally adopted, inasmuch as he makes the attempt to distinguish between the original disease of the blood, and the local complications resulting from it, the latter only having previously occupied attention, to the exclusion of the former, which in reality demands the chief consideration. In his description of tuberculosis as a blood disease, he first gives the history of the tuberculous predisposition, commencing with the physical and chemical attributes of the blood itself.

In this part of his labours, Mr. Ancell draws largely upon the French and German writers, whose researches have already appeared in our pages, in the admirable 'Reports on Pathological Chemistry,' by Dr. Day; especially referring to Andral and Gavarret, Becquerel and Rodier, Simon, &c.; and among British writers, to Dr. Glover, Nicholson, and others, the result of his inquiries being to the effect that in tuberculous blood there is a deficiency of red particles, and that the albumen is increased in quantity as well as the water, while, on the other hand, the fibrin is below the normal proportion.

In inquiring, in the next place, into the condition of the *lymph* in tuberculosis, Mr. Ancell is obliged to rest upon a precise reasoning, no experiments having been instituted, which, in the present state of chemical science, can be relied upon. So also with regard to the *chyle.* The inference is, that both fluids are of a depraved composition.

Having given an account of the modifications impressed upon the fluids by the tuberculous predisposition, the author next reviews the characteristics of the tissues developed from this tuberculous blood, beginning with the *cellular tissue,* which he shows to be different in molecules, and therefore of weak vital force. From this it exhibits a want of firmness and resiliency, and is soft and glutinous, maintaining, in fact, many of the characters which it presents in the embyo. The consequences resulting from this degraded cellular tissue are then shown in the several systems. The *vascular* system is weaker, the vessels more distensible and less contractile. Hence the great conspicuousness of the veins. In the *cutaneous* tissues corresponding modifications are

* Provincial Medical Journal, p. 506, 1850.

† Medical Times, No. 1 et seq. New Series.

observed, and form some of the most characteristic marks of this peculiar habit of the body. In the *mucous* membranes, also, certain changes are observed by which they become paler and more prone to hypersecretion. The peculiarities of the *osseous system* in the tuberculous are next pointed out, after which the *fibrous*, *muscular*, and *medullary* tissues undergo an equally minute examination.

We now arrive at the functional peculiarities of the tuberculous habit; and, first, of the

Digestive Functions.—The defects in this process are shown to be very conspicuous. The whole mucous tract is prone to increased discharges, and all the secretions are of a deteriorated quality. The appetite is good, but food does not afford sufficiently prolonged satiety. Vomiting and nausea are readily produced, and digestion is attended with acidity and flatulence.

The intestinal functions are also badly performed; defecation is sluggish, and the character of the evacuations unhealthy.

The Functions of Respiration and circulation are feebly performed, and the pulse is weak, and the heart powerless, as is shown in the cold extremities of tuberculous subjects.

The *secretions* are equally depraved. The mucous discharges are apt to be superabundant, the cutaneous secretions deficient, fetid, and greasy. The urine is mostly paler than usual, and contains less than the normal proportion of urea.

The general characteristics of the tuberculous habit, as derived from the changes in the composition of the blood, being thus disposed of, Mr. Ancell proceeds to notice the symptoms of tuberculosis, which he considers under the heads of anæmia, emaciation, debility, diminished power of sustaining animal heat, and febricula.

The *anæmia* of tuberculosis is one of the earliest sequences of the establishment of the diathesis, being, in fact, one of its best known characteristics. It differs from simple anæmia in the character of the blood, and especially in the tint of the cutaneous and mucous tissues.

Emaciation is another early, and, in reference to diagnosis, very important symptom in tuberculosis. In judging, however, of its extent, Mr. Ancell suggests the necessity of estimating weight in reference to height, and alludes to the observations of Dr. Hutchinson.*

The *debility* of the tuberculous is indirect and direct; but it is on the latter that the author lays most stress. It commences insidiously, and proceeds gradually. The author notices in succession, debility of the muscular system in the circulation, as indicated by the pulse, and in the respiration, by diminished vital capacity. On this subject the author again avails himself of Dr. Hutchinson's experiments, as well as of the observations of Dr. Sibson on thoracic mobility as indicative of disease.

After some brief remarks on the loss of power of sustaining animal heat, and on the hectic condition of tuberculosis, the author proceeds to the *special pathology* of the condition.

In entering upon the subject of *tuberculous deposits*, Mr. Ancell takes the opportunity of signifying his belief in the identity of scrofula and phthisis. He then describes, at some length, tuberculous pus and tubercle.

Tubercle.—The history of this abnormal product, as given by Mr. Ancell, is very complete, and includes the chemical and microscopic description, the seat of the deposit, which he succinctly gives in the words of Rokitansky, that "its seat may be any point of any tissue external to vessels, in short, where

* Medico-Chirurgical Transactions, vol. xxix.

there is a capillary system there may tubercle be deposited;" the origin and primary development of the product, and the relations which subsist between the different varieties. This latter point involves the consideration of the analogies of tubercle and the gray granulation, in discussing which the author is disposed to admit their identity, though he thinks the consideration of the question not exhausted.

In a subsequent lecture (viii) the author next gives a minute account of the phases of tubercular development, among which he enumerates the process of softening and liquefaction, the absorption in the crude state, obsolescence and cretaceous transformations. On all these subjects the author has given the exact state of knowledge as it at present exists. (*To be continued.*)

—Mr. Simon agrees with Mr. Ancell in regarding tubercle as the essential product in scrofula. This product he considers to be some misdevelopment of the proteinous ingredient of the lymph and blood, the essence of which lies in the solidification of something which should remain fluid. This solidification is due, in his opinion, to the oxidation of the protein ingredient, whence its formation is most likely to occur in the glands where lymph is brought into immediate contact with arterial blood, and in the lungs, where it meets the oxygen of the atmosphere. Tuberculosis is, therefore, a disease, not of the entire mass of blood, but of the lymph or nascent blood; and tubercle is precipitated wherever this lymph comes into contact with oxygen. This theory, as he informs us, agrees with the opinion of Rokitansky, that venosity of the blood excludes tubercle.*

7. *Cretinism.*—This peculiar modification of the human constitution is so nearly allied to that just considered, that it may, with great propriety, be the next subject of report.

The most recent communication on this subject is one by M. Boudin,† founded on the Report of the commission of inquiry instituted by the King of Sardinia. This commission defines cretinism to be " a degeneration of the human species, which manifests itself in different parts of the globe, and characterised by idiocy, more or less pronounced, associated with malformation of the body." It has been observed in Europe in the Alps, the Pyrennees, the Jura, the Hartz, and the Carpathians; in America, in the Cordileras; in Asia, in the Himalayas, and in the mountainous districts of Tartary.

Sometimes the affection appears at birth, but generally no sign of the cretin appears till subsequently. The stature is seldom over four feet, many do not surpass three feet six. They are generally thin, with tawny skin, and a countenance expressive of a brutal deficiency of intelligence. The head is misshapen and out of proportion; the muscular strength is below par; the articulation imperfect. The cretin has few diseases, pellagra is, however, not infrequent in the valley of the Po.

As far as the commission could gain information, season had no influence on the propagation of cretins. Other statistical facts, of more or less interest, are as follow:

Cretinism declared itself—

Between birth	and	the age of	2	years in	4440
„	2	„	5	„	187
„	5	„	12	„	202
„	12	„	20	„	31
Above	20	„	—	„	28

* Op. cit., p. 185.

† Récherches sur le Crétinism en Général, &c.. Archives Générales, Sept. 1850.

In goitrous cretins, the goitre commenced—

Between birth and the age of	2	years	in		2333
„	2	„	5	„	199
„	5	„	12	„	419
„	12	„	20	„	31
Above	20	„	—	„	28
Age not specified		„	—	„	711
					3721

In analysing these and other tables, the commission have ascertained that hereditary influence is not powerful in the production of cretinism, as out of 8000 families of cretins, not more than 300 parents were the subjects of the malady.

In reference to locality, the commission have established that deep, narrow, and tortuous valleys, abound the most with cretins, and that the villages in which they reside are remarkable for the abundance of stagnant water. They have also made out that the water is highly charged with lime, and deficient in iodine and bromine.

The commission have determined that the eradication of cretinism is best effected by the following hygienic precautions: To drain the valleys; to cut down unnecessary trees, so as to allow of a free circulation of air; to furnish a purer water; to insist upon houses being built on sanitary principles. To encourage a meat diet, and the liberal use of salt; to prevent, as far as possible, the marriages of cretins, as well as of scrofulous and rickety persons.

8. *Rheumatism, Analogies of.*—In our last Volume, Art. 1, we published some important observations by Dr. Garrod, on the analogies of gout and rheumatism. It would appear as the result of that close investigation of disease which distinguishes the present age, that the affinities of the latter are still more extensive, Dr. Begbie having noticed the close connection of rheumatism and erythema nodosum. His observations, which are of much interest, may be thus summed up:

1. The skin affection is most common in the young, the chief subjects of rheumatic diathesis.

2. Erythema nodosum occurs in females suffering from menstrual derangement, confirming the views of Drs. Todd, Rigby, and Locock, as to the close connection of uterine disorder with rheumatic affections.

3. It occurs in connection with disorders of the health characterised by pallor, cachexia, and defective excretion, with subsequent febrile excitement, and pain in the joints and muscles, with copious lithate deposits in the urine, a condition analogous to that of rheumatism.

4. It is frequently associated with rheumatic fever, and with those internal disorders with which rheumatism is allied, as pleurisy.

5. It yields to quinine, which has long been a remedy for rheumatism.*

9. *Corpulence.*—It is not always easy to draw the line between healthy 'embonpoint' and morbid accumulation of fat; but that the deposit of adipose matter may constitute a pathological condition is unquestionable. Beyond a few articles which have been inserted in the various journals and medical dictionaries, corpulence has not been treated of medically until Dr.

* Edinburgh Monthly Journal, June, 1850.

Thomas King Chambers selected it for the subject of his Gulstonian Lectures, a republication of which, in a separate form, is now before us.*

The volume in question consists of ten chapters on corpulence, and one on emaciation. The first four are devoted to the physiology of the subject, embracing the chemical and physical attributes of adipose matter, its uses, and the results of its non-elimination from the blood.

The predisposing and exciting causes of obesity form the subjects of the eight chapter. Of the exciting causes, none appear so potent as the occurrence of fever; or of a surgical injury which enjoins confinement, without deranging the powers of digestion and assimilation.

The influence of obesity on life, and on other diseases, is an interesting study. In chapter ix, Dr. Chambers points out the serious embarrassment which must of necessity ensue, from the superaddition of such an immensely increased area of vascular tissue as occurs in the capillary vessels of the new deposit, without augmented power in the central organ of circulation. All the effects of an overtaxed organ, local congestions, insufficient aeration of the blood, and general exhaustion, are unavoidable.

In this chapter Dr. Chambers likewise inquires into the causes of death in 67 cases of obesity. The principal of these appears to be such as are connected with the heart, which was found variously diseased in 50 cases. In a large proportion the kidneys were also degenerated.

The treatment of preternatural obesity does not offer much encouragement. Diet and exercise are of course mainly to be relied upon; but something may also be accomplished by medicine. Of these, Dr. Chambers speaks favorably of Liquor Potassæ in drachm doses, given in milk. He has by this succeeded in reducing the weight of some fat subjects.

PART II.—SPECIAL PATHOLOGY.

§ 1. *Diseases of the Nervous System.*

10. Two new works connected with the diseases of the nervous system demand some notice: *viz.*, one '*On the Causes, Nature, and Treatment of Palsy and Apoplexy*,' by Dr. Copland; and the other entitled, '*Causes, Nature, and Treatment of Eccentric Nervous Affections*,' by Mr. Anderson.

The first of these treatises is a republication, with some re-arrangement of several of the chapters of the author's 'Dictionary of Practical Medicine,' connected with cerebral disorders; together with the materials of his 'Croonian Lectures' for the years 1846 and 1847. They are now published, the author informs us, from a conviction that palsy and apoplexy should not only be studied together, but in connection with other diseased conditions of which they are often either consequences, or with which they are associated. The practical physician will at once accede to the correctness of this view, and will, we doubt not, regard this further contribution on the part of Dr. Copland, as a most valuable acquisition.

* Corpulence, or Excess of Fat in the Human Body; its Relation to Chemistry and Physiology; its Bearings on other Diseases, &c., by Thomas King Chambers, M.D., Fellow of the Royal College of Physicians.

In the composition of his work Dr. Copland first studies palsy in its uncomplicated form, both as it affects sensation and motion. The first chapter contains the various forms of paralysis affecting the special senses, as that of smell, taste, &c. When speaking of general anæsthesia, he takes the opportunity of stating his views on the effects of inhalation and chloroform.

The uncomplicated forms of apoplexy are next considered in Section II, in three chapters, embracing respectively, the symptoms of apoplexy, primary and simple apoplexy, and ingravescent apoplexy.

We have next a section on the association of palsy and apoplexy with each other, and another section (IV), on the association of palsy and apoplexy with other diseases. This is a most important portion of the book, and is deserving of the deepest attention. Of the seven chapters which compose this section, we would especially draw attention to those on the connection of palsy and apoplexy with insanity, and their association with disease of the heart.

Section V, treats of the diagnosis and prognosis of apoplexy and palsy. Section VI, of the causes remote and proximate of these states. This section is divided into five chapters, embracing the contingent causes of apoplexy and palsy, the pathological states constituting apoplexy, and the pathology of palsy. The remainder of the volume contains the best recognised treatment of these several conditions above mentioned.

We regret that in the limits of this report we are able only to give an outline of this most valuable monograph. It is unquestionably the most complete exposé of the important subjects of which it treats that has ever appeared in the English language, and should be in the possession of every one who would master the intricacies of cerebral diseases.

—Mr. Anderson, without any merit as regards originality, has produced a book which may prove useful to the inexperienced practitioner. His object has been to elucidate some of those diseases of the nervous system, to which Dr. Marshall Hall has given the name of "Eccentric," from the fact of their originating in causes extraneous to the nervous centres. The diseases which here occupy the author's attention are hysteria and hypochondriasis, chorea, epilepsy, that important nervous condition termed shock, delirium traumaticum and tremens, tetanus and hydrophobia. On each of these subjects, the reader will find sound practical information, but, as we have before said, there is nothing that may not be found in the writings of Dr. Copland, Marshall Hall, Watson, Todd, &c.

11. *Softening of the Nervous Centres.*—Some well-selected cases, illustrative of this insidious form of disease, have been recently published by Dr. Semple.*

12. *Delirium and Coma* — their *Pathology.*— In a former part of this volume, we have given as extracts some portions of Dr. Todd's admirable Lumleian lectures,† referring to the treatment of the different varieties of delirium and coma, we proceed now, as briefly as is compatible with their value, to notice the author's view on the pathology of those conditions.

The author defines coma to be a "complete suspension of that mutual influence of the mind and of the organ of consciousness, in which, physiologically speaking, our consciousness depends." Delirium is a complete disturbance of the intellectual actions. In studying these two states, the author proposes first to inquire into the clinical history of delirium and coma; secondly, from the facts collected, he endeavours to deduce a view of the pathology of these affections, and lastly, he describes the treatment.

* London Journal of Medicine, Sept. 1850.

† Published in the Medical Gazette, April, May, 1850.

Commencing with *delirium*, the author describes seriatim certain varietes, as witnessed in practice, and first speaks of—

13. *Epileptic Delirium.*—This is a form which he thinks is not sufficiently appreciated, it is, however, not uncommon, and the author thinks that it is the access of this delirium which leads to the sudden criminal impulses. His description of this form of delirium is as follows:

"A man, hitherto healthy, fails somewhat in health, becomes dull and melancholy—takes a gloomy view of things—but still his ill health is not sufficient to prevent him from following his usual avocation, nor is it noticed by any, save perhaps those who are constantly with him. There may or may not be some cause for this—some excess—or some mental trouble or anxiety—some altered position of his affairs.

"Presently, either at night or on first waking from sleep in the morning, or it may be while he is at his usual employment or business, he becomes strange and incoherent—talks at random—mistakes things and persons—writes odd letters: in short, he displays unequivocally, by words and actions, that the mind is disturbed.

"This state of delirium may speedily end in an ordinary paroxysm of epilepsy, with all its accompaniments, after which the patient resumes his wonted health; or it may continue for a considerable time, assuming even the characters of violent mania, with sleeplessness, exciting the utmost terror among the patient's family and attendants: it may last even for days, and then the occurrence of an epileptic fit relieves all doubts as to the nature of the maniacal paroxysm."

This kind of delirium sometimes amounts to absolute mania, but it is seldom accompanied by any great constitutional excitement. It comes on suddenly, a man being one moment apparently well, the next furiously maniacal. The author narrates three or four cases exemplifying this. The result of this delirium, if long continued, is to produce exhaustion, and this is generally the immediate cause of death in fatal cases. After death, pallor of the cineritious portion of the brain is the only morbid appearance.

14. *Delirium* is sometimes observed as a symptom of chorea, but is comparatively rare, the author alludes only to a single case.

15. *Hysterical Delirium* is the next form which comes under consideration. Of this the author gives the following illustration:

"A girl of hysterical constitution has been somewhat out of health, without, it may be, any very prominent symptom, excepting, perhaps, headache; her spirits are more or less depressed, and she shows some tendency to hysterical paroxyms,—she may have one or two; presently she does not so readily as usual recover from one of these; she becomes odd in her manner—obstinate—talks at random—refuses food—and she is now evidently delirious, which may be accompanied with more or less of stupor and indifference to all around, or may be violent and furious: she will try to get out of bed—be mischievous—attempt to injure herself or her attendants—wakeful; and in such cases it is that the patient will act and talk in the manner apparently the most repugnant to the character and reputation she had previously enjoyed, or the real defects in her character: her real inclinations, which principle, or prudence, or cunning, had taught to overcome or conceal, will become developed, and she will be obscene or amorous, or exhibit violent hatred towards others, or other feelings to them: it may be that she will now speak the truth, which before she did not venture to do."

This form of delirium is not often fatal, unless it be mistaken for some more serious affection and treated antiphlogistically. That the diagnosis is

difficult, is sufficiently shown in the fact, that Dr. Todd relates a case in which he committed the above error.

Males are occasionally liable to delirium which is, apparently, hysterical, Dr. Todd has seen it in over-worked literary men. Of this he gives two interesting examples.

16. *Puerperal Delirium* closely resembles the hysterical form. It occurs soon after parturition, and is generally the result of some mental emotion, or the exhaustion of hæmorrhage, or prolonged lactation. The author agrees with Dr. Gooch, that there are two forms of puerperal delirium, one accompanied by fever, the other not so. The first highly dangerous, the other comparatively curable.

17. *Anæmic Delirium.*—This form may arise either when the blood is impoverished, or has been lost from the vessels. Many cases of hysterical delirium are of the former kind, as puerperal delirium is of the latter. This form of delirium is not unfrequently preceded or followed by convulsions.

18. *Traumatic Delirium* is thus described:

"A man meets with a severe accident, a compound fracture, or he undergoes a great surgical operation: for a day or two matters seem to go on well, when he suddenly becomes confused in his ideas, incoherent, and at length he becomes wild and talkative, and wakeful; refuses food, tries to get out of bed, perhaps tears off his bandages or splint; and, what is very remarkable, seems perfectly indifferent to pain, and moves the broken limb or injured part as if it were in a natural condition. Sleeplessness is a prominent feature of this delirium; and when that is overcome, as it frequently may be by the careful use of opium, the patient gets well; but sometimes the delirium is so violent as to exhaust the patient in a few days. Nor does the delirium always bear a direct proportion to the severity of the injury. Dupuytren relates the case of a young man in whom it came on in consequence of a slight injury to one of his toes, and killed him in two days."

In these cases, as in the other examples of delirium which the author has mentioned, he remarks that post-mortem inspection discloses no lesion of the brain or its membranes. "Neither in the cerebro-spinal apparatus, nor even in the other organs," says Dupuytren, "can we perceive any material lesion which has taken place during life, which can afford a satisfactory explanation of the cause of death."

19. The *Delirium* of *typhus* and *erysipelas* may be considered together, as they closely resemble each other, the latter being more frequently violent, while the former is generally of the low muttering kind. It is an important fact, and one which Dr. Todd strongly insists upon, that febrile delirium leaves no cerebral lesion to account for it. The brain in typhus is, he observes, essentially healthy; the fulness of the blood-vessels being no more than is met with elsewhere, when their coats are lax. So also in erysipelas, the brain in fatal cases does not, in the author's experience, exhibit any lesion sufficient to explain the delirium.

20. *Rheumatic Delirium.*—Under this title the author includes delirium accompanying pneumonia or inflammation of the heart, because it occurs commonly, if not uniformly, in the rheumatic state. This form of delirium comes on suddenly during rheumatism, or after a few sleepless nights. It is generally of the maniacal kind. Patients sometimes die suddenly from exhaustion in this form of delirium, or it merges into fatal coma. In some cases, prior to the onset of the delirium, the patient is seized with jactitation, or a state approaching tetanus. The author notices that, coincident with the first

appearances of these symptoms, that is, either of the delirium or the jactitations, we frequently find, but by no means always, the first signs of inflammation of the pericardium, or of the endocardium, or of one or both lungs, or of the pleura; and as the delirious state diverts the mind of the patient from the perception of all pain, it often happens that no other indications of the internal inflammation can be obtained than those of the physical signs, the rubbing sound, or the bellows-murmur, or the altered breathing sounds: and hence it has not unfrequently happened that in the midst of the great disturbance of the intellect, the inflammation within the thorax has been unsuspected, and undetected.

Judging from his own observation of this delirium, he believes that it occurs chiefly in those patients who exhibit considerable pallor, whether that pallor be simply the result of the rheumatic state, or of that combined with the effects of a greater or less loss of blood. He states that he has seen it brought on in a patient, who had previously exhibited no untoward symptom, by the application of some leeches to a rheumatic joint, without any cardiac inflammation: and he has also seen it come on after very large bleeding, both general and topical, where there was no very extensive development of the rheumatic state, and where, also, the signs of cardiac inflammation were at most indicative of but a slight endocardial inflammation. But he admits, on the other hand, that it may come on where there has been no bleeding practised at all: and that it has got well when bleeding, topical or general, has been practised *after* the appearance of the delirium.

The author cautions the inexperienced practitioner against mistaking these cases for inflammation of the brain, and details cases in which the treatment arising out of this error was of no avail, but the contrary. The heart is the seat of the disease, and not the brain, which, as in the other forms of delirium above described, is found to be healthy.

We shall pass over the author's observations on gouty delirium, which mostly resembles that of rheumatism, as well as that of delirium tremens, and proceed to the consideration of the varieties of coma. The first on the list is—

21. *Epileptic Coma.*—The author states that the most perfect example of this kind of coma is to be found in the epileptic vertigo, or "*petit mal*," of the French. He also refers to it, what Dr. Abercrombie terms congestive apoplexy. This form of coma is closely connected with chronic renal disease. It is sometimes very slight, and even momentary. The author thinks that what are called slight paralytic strokes, are sudden attacks of epileptic coma, the paralysis being transient.

As in delirium, so in epileptic coma. The author tells us that no explanation is to be found in the brain: if the affection be recent, no morbid change at all will be seen; but if there have been several attacks prior to the fatal one, there will be the same appearances as in fatal epilepsy, namely, shrinking of the convolutions, some opacity of the arachnoid, &c.

22. *Hysteric Coma* is the next form spoken of, and to it is referred the peculiar tranee induced by mesmerism.

23. *Traumatic Coma* is the condition familiarly known as concussion of the brain, but it also sometimes occurs as the result of nervous shock after operations.

24. *Rheumatic and Gouty Coma*, and the *Coma* of *Typhus*, follow in succession, after which the author lays down the following general propositions:

1. That delirium and coma may be produced by the introduction of certain

poisonous agents into the blood, either directly or through the digestive organs.

2. That a deteriorated and poisoned state of the blood is favorable to the production of delirium and coma; as in the cases of rheumatic and gouty delirium and coma, and of the delirium and coma of typhus, erysipelas, and the exanthemata.

3. That the same state or states of the brain which are favorable to the production of epileptic convulsions are favorable to delirium and coma.

4. That the anæmic state, or that state of blood in which the colouring matter is very deficient, is favorable to the production of delirium and coma.

5. We learn that compression will produce coma, but not delirium.

And lastly, that in all these cases the delirium or the coma may occur in their highest states without the slightest evidence of any inflammation of the brain, or of its membranes.

Having given, in detail, the varieties of delirium and coma met with in practice, Dr. Todd now proceeds to inquire whether, in the present state of science, an adequate theory of the pathology can be formed. This inquiry involves two questions: 1. What part is affected in delirium and coma. 2. What is the nature of that affection, and can it be the same in each variety.

In replying to the first question, the author observes that we can only assign the nervous system as the seat of these affections, and only that part of the system which is connected with the actions of the intellect; but the brain itself being a complicated organ, the next inquiry is as to what part of the brain is implicated. This Dr. Todd points out, by a train of physiological reasoning, to be the convolutions of the brain, and the central portions, known as the optic thalami, and their downward continuations. Delirium is an affection of the former; coma of the latter.

The second question Dr. Todd thinks may be satisfactorily solved by a reference to the circumstances under which delirium and coma occur. Thus, it is seen, that in moderate doses, chloroform, Indian hemp, &c., cause delirium; in larger doses they produce coma. In such cases the cause is clearly humoral, as it is also in the instance of alcohol; and Dr. Todd believes that the congestion of the brain found in such cases is generally considered to be the immediate cause of the affection; but Dr. Todd does not accept this explanation, regarding the congestion as an effect of a prior action of the poison upon the nervine, whereby due capillary circulation is suspended, and congestion favoured. This view he illustrates by a special reference to delirium tremens; but he further shows that it may be made applicable to other forms of delirium, as the *renal* epileptic, as well as the *simple* epileptic, the hysteric, the rheumatic, and the febrile, in all of which it is not difficult to acknowledge a contamination of the blood, either by retention of what should be eliminated, or by the super addition of deleterious matters from without.

If these views be admitted in respect to delirium, Dr. Todd shows that they may be readily extended to the pathology of coma, which, excluding local causes, as depression of bone and such like, may be considered merely as the result of a deeper degree of poisoning than in delirium. In the latter case the poison simply irritates the brain; in the former it paralyses it.*

25. *Neuralgia—Sciatica.*—Among the marvellous records of our French neighbours is the proposal to cure sciatica by applying the actual cautery to the ear. The practice seems to have originated in Corsica, but M. Malgaigne professes to have had great success with it in the hospital of St. Louis. Why the tip of the ear should be preferred to the tip of the nose is difficult to say.†

* Medical Gazette, April, May. † Révue Médico-Chirurgicale.

26. *Chorea.*—Dr. Lee has observed forty cases of this disease in the Hôpital des Enfans, from which, and from the analysis of recorded cases, he comes to the conclusion that there are four varieties of the disease. Of these, the *first* is sympathetic, with local lesions of the viscera of organic life; the *second*, the most common form, is a general disease, and closely allied to rheumatism; the *third* variety is not characterised by any appreciable lesion; and the *fourth* depends upon cerebral or spinal disease.*

In a paper read before the Medical Society of London, Mr. Pilcher narrated cases of nervous disease which simulated chorea.† They both occurred in adult males. No eccentric cause could be detected in either.

§ II.—*Diseases of the Respiratory System.*

27. Among the works recently published on this department of pathology, we notice a second edition—a republication in a separate form—of a paper published by Dr. Turnbull, in the 'London Journal of Medicine,' on the curability of Phthisis, which was alluded to in our last Volume, p. 219, and a 'Practical Synopsis of the Diseases of the Chest,' by Dr. James Bright, The latter book is made up of an elementary description of the organs of respiration and some common-place remarks on climate. It is not in any way worthy the attention of professional readers; and as regards the public, for whom we conclude it is intended, is inferior to a score of others that might be mentioned.

28. *The Stethometer.*—Under this name an instrument has been introduced by Dr. Richard Quain, for the purpose of measuring the extent of movement of the walls of the chest, as a means of diagnosis in thoracic diseases. It consists of a flat case, not unlike a watch case, having on its upper surface a graduated dial and index, which is acted upon by a simple mechanism. A silk cord, long enough to surround one-half the chest, passes through an aperture in the case. The dial is graduated into fifty equal parts, each of which represents the $\frac{1}{200}$ of an inch. In using the instrument, the dial is placed firmly against the spine, and the point of the tape over the sternum, or at any other spot according to the part to be examined; the extension of the string, as indicated by the dial, shows the amount of elasticity of the thoracic walls.‡

29. *Bronchitis.*—Our readers are referred to the 'Edinburgh Monthly Journal' of August and September, for an excellent essay on the morbid anatomy of this disease by Dr. Gairdner.

30. *Pneumonia.—Red and Gray Hepatization.*—Dr. Betz has inquired into the question of pathological association of the above two lesions. Andral, Rokitansky, and other pathologists of note, regard the gray hepatization as a further stage of the red, the change being due to the absorption of the colouring matter. The author thinks that gray hepatization is a fibrinous deposit from the capillaries of the inter-vesicular cellular tissue, and is analogous to the exudation of croup; and that it may or may not eventually become coloured. He believes, in fact, that in pneumonia there may be two kinds of exudation, that of pure fibrine, forming the gray hepatization; and that of a mixed character,

* Bulletin des Académies, and Brit. and For. Med. Rev., Oct., 1850.

† Reported in Medical Gazette, Nov. 8.

‡ London Journal of Medicine, Oct. 1850.

red hepatization; the tendency of which is to degenerate into pus, if not absorbed.*

31. *Empyema.*—Dr. PEDDIE has narrated a case of empyema in which paracentesis was performed twelve times, and ultimately with success. It is, in its details, similar to one given by Dr. Hughes. (Abstract, vol. V, p. 197.)†

32. *Phthisis.—Value of Prolonged Expiratory Murmur.*—The diagnostic importance of this sign has been made the subject of a paper, by Dr. THEOPHILUS THOMPSON.‡ After referring to the opinions of various authors, such as Laennec, Fournet, &c. the author proceeds to state that, in the ordinary healthy condition, the expiratory murmur is very slight, and very little more distinct in one part of the chest than in another; and that in some individuals it is naturally inaudible, excepting, perhaps, during hurried breathing. In the natural condition he considers the duration of the expiratory sound equal to about a fourth of that of the inspiratory; the inspiratory and expiratory movements being about equal in duration, and three fourths of the latter being performed in silence. In determining how much of altered rhythm may depend on extension of the expiratory murmur, and how much on diminution of the inspiratory, the author adopts Dr. Sibson's plan of counting the number of strokes which can be given in beating time with the finger during the presence of each murmur. The natural elasticity of the lungs is essential to soft and uniform expiration. Wherever there is considerable consolidation from tubercular or pneumonic deposit, bronchial expiration may be induced; and when the walls of the pulmonary cells are only slightly thickened, and the neighbouring structure is becoming occupied with the glairy, grayish deposit characteristic of early phthisis, the diminished contractility of the cells, interrupted passage of air, and increased power of conducting sound, may be sufficient to render the expiratory murmur more durable, coarse, and audible. A diversity of opinion, however, exists regarding the value of this change of murmur as a sign of incipient phthisis; and the author, with a view to determine its significancy, gives in this paper the results of an analysis of 308 cases selected from those out-patients of the Hospital for Consumption in whom he noted prolonged expiratory murmur as the most prominent symptom. In 20 there was either bronchitis or emphysema. In the remaining 288 the symptom under consideration was observed almost invariably near the summits of the lungs. In 108 on the right, in 56 on the left, in about 124 on both sides; in this respect contrasting with wavy inspiration, the frequency of which the writer has found to preponderate greatly on the left side. With a few exceptions, referable chiefly to bronchitis or congestion, he has not recorded any instances in which prolonged expiratory murmur, when once established, ever ceased to be obvious, unless superseded by signs of more advanced disease. After describing the usual course of the symptoms, the author mentions that the most frequent special accompaniment was hæmoptysis, which occurred in 91 cases out of the 288; that is, in more than thirty-one per cent. Assuming that, of the hospital patients taken generally, about forty-three per cent. have hæmoptysis before softening takes place, he calls attention to the fact that, whilst on the one hand the coexistence of hæmoptysis in patients with prolonged expiration is sufficiently frequent to strengthen the supposition that there is a connection between this altered murmur and phthisis,—on the other hand the frequency of hæmoptysis in these patients is so much below its average in consumptive cases generally, as to point towards two important conclusions, namely—

* Archives Générales, Oct. 1850 † Edinburgh Monthly Journal, Aug. 1850.
‡ Medico-Chirurgical Transactions, 1850.

1st. That prolonged expiratory murmur takes precedence of other signs.

2dly. That hæmoptysis more frequently follows than precedes the disposition of tubercle.

The writer proceeds to prove, from the facts recorded, the fallacy of the opinion that prolonged expiratory murmur may exist on the right side irrespective of disease; but as this delicate indication may, in a majority of instances, be first detected in that situation, he recommends the careful examination of the upper part of the chest, especially on the right side, with reference to this sound, whenever hereditary phthisis is probable,—a measure which has sometimes led him to detect disease not previously suspected. He concludes with the expression of his opinion, that in the absence of certain sources of fallacy, such as bronchitis and emphysema, this disturbed rhythm of the murmur is the most early and significant sign of phthisis; and that, especially under favorable circumstances, and with appropriate treatment from the first detection of this symptom, the duration of the disease will be found considerably to exceed the period commonly assumed.

— Dr. Meigs has propounded the startling theory that tubercles are the result of the disintegration of fibrinous cardiac concretions, which are carried into circulation and become arrested in the bronchial capillaries, or in those of the pulmonary artery.—This curious idea, we need scarcely say, met with little encouragement in the debate which ensued.*

— Several papers have been published by Dr. Burgess, in corroboration of the opinion now generally gaining ground, that it is useless to send consumptive patients to Italy and other warmer climates. He asserts, with great reason, that all the benefit to be derived from climate, may be attained in this country.†

33. *On the force of Fecundity in Phthisical Subjects.*—With the view of determining the question whether the power of procreation is enfeebled or not by the tuberculous diathesis, Dr. Walshe has made some careful observations, the results of which he has brought together in a paper published recently in the 'Medical Times.'‡ The paper in question contains three tables. Of these, the first shews the mean number of children and abortions resulting from ninety-one marriages, in which one or other parent was tuberculous; the second, the mean number of children in 220 marriages in which neither were tuberculous. The third exhibits a comparison of the two, from which it appears that there is a greater tendency to multiply in the tuberculous than in the rest of the community. This greater tendency is, however, comparatively small; so small, indeed, as scarcely to repay the trouble expended in ascertaining the fact.

34. *Appearance of the Gums in Phthisis.*—M. Fredericq published some observations in 1847, in which he stated, that in phthisis a red streak is constantly to be found on the gums opposite the lower incisors, and sometimes the upper ones also. Since then he has paid great attention to the subject, and now says, that in the latter period of all chronic diseases, some time before death, a blue or red streak will always be found; but that in phthisis it is one of the earliest signs. In all the cases of *phthisis*, without exception, that have come under his notice, he has met with this brick-red, or blue streak. The *brick-red* colour is especially found in inflammatory phthisis, or at least when much bronchial irritation and nocturnal fever are present; while the *blue* colour denotes a less active form of disease, and is oftenest found in those

* Reported in Dublin Medical Press.
† Lancet, May 11, 1850.
‡ July 6, 1850.
§ Revue Médico-Chirurgicale.

who suffer from abundant pneumonorrhagia, although by no means always indicating the probability of the occurrence of this. In a few cases, a *white* line, as observed by M. Vanoye, contrasts with the general colour of the mucous membrane, and those who exhibit it are usually of a marked serofulous and eachectic habit. He believes these streaks to be of great importance in announcing early phthisis, in those cases in which doubt prevails as to whether a bronchitis or catarrh is connected with tubercle. The author has never known persons suffering from bronchitis in whom this mark was absent afterward become the subject of phthisis; while those in whom it was distinctly present have all afterwards furnished signs of tubercle. The deeper the colour, the more rapidly does the disease proceed, while it is a good sign to find it becoming paler. Patients in whom the process of softening has become temporarily arrested, and who believe themselves cured, continue to offer the blue mark, but paler than before. When the disease re-commences its mareh, the mark becomes plainer.

§ III. *Diseases of the Circulatory System.*

35. *Fatty Degeneration of the Heart.*—The admirable monograph on this subject, by Dr. Quain, of which we gave an abstract in our last Report, has since appeared in the volume of the Medico-Chirurgical Transactions for the present year, as well as in a separate form, with which latter the author has favoured us. We again call attention to it as a very complete exposition of an important disease.

36. *Hypertrophy and Dilatation.*—A paper has recently appeared in the 'Edinburgh Monthly Journal,' from the pen of Dr. Halliday Douglas, with the intention of exhibiting the importance of hypertrophy and dilatation in diseases of the heart, and to point out their frequent co-existence. The memoir is illustrated by numerous examples, in separate series of cases—first, of simple hypertrophy and dilatation; secondly, of aneurism of the heart; and thirdly, of obstruction and incompetence of the valves. In each of these the effects of the association of hypertrophy and dilatation, whether injurious or compensatory, are satisfactorily displayed.*

37. *Chronic Disease of the Heart.*—The pathology, diagnosis, and treatment of chronic diseases of the heart, form the subject of a paper by Dr. Ritchie, in which he endeavours to introduce more precision into the study of these diseases than is generally undertaken, having especial regard to the distinctions between lesions of the right and left side of the heart. This paper is so well deserving of attention, and so little admits of condensation, that we shall reserve its detailed consideration for our next volume.

§ IV. *Chylopoietic System.*

38. *Constipation.*—Dr. Burne has recently reissued his work on the consequences and treatment of habitual constipation. This treatise was so well received by the profession, on its first appearance, that there is little need of commendation on the present occasion. Constipation of the bowels is one of

* Memoir on the Influence of Hypertrophy and Dilatation in Diseases of the Heart, and in some points connected with their Diagnosis and Treatment, by Dr. Halliday Douglas. Edinburgh, Sutherland and Co.

the ills almost necessarily attendant upon artificial life; and its prevention and removal are frequently as difficult to the practitioner as essential to the health of the individual. There are many men even of experience in the profession who are either ignorant of, or do not fully appreciate, the secondary effects of torpid bowels; and to such the truly practical observations of Dr. Burne will prove of valuable assistance.

— An excellent paper on constipation may be found in the 'American Journal of Medical Science,' by Dr. METTAUER,* to which we may refer the reader for many useful hints. A paper on the same subject, by Dr. WARREN, is found among the 'Extracts,' in the present volume.

39. *Intestinal Obstruction.*—Several cases of intestinal obstruction have recently been recorded. Of these we shall first mention a case published by ALEXANDER KNOX,† the interest of which consists in the resemblance of the symptoms to labour pains. The obstruction was caused by impacted scybalous masses, composed of vegetable matter, supposed to be portions of cabbage. The periodical expulsive efforts of the abdominal muscles closely resembled the pains of labour.

— Two cases of fatal obstruction from peritoneal bands are recorded by Mr. C. R. THOMPSON. This appears to be a frequent cause of internal strangulation of the intestines, and may arise either as the result of former peritoneal attacks, or the band may be congenital. In the two cases related, there was no evidence of previous inflammatory action.‡

— An instructive case of insuperable constipation is also reported by Mr. BIRKETT, the cause of which was an unsuspected stricture of the rectum. The former existence of a congenital hernia, which had been returned a day or two prior to the occurrence of the symptoms of ileus, naturally diverted the attention of the surgeon from the real cause of the obstruction.§

40. *Dysentery.*—In a memoir which appears in the 'Dublin Quarterly Journal' for November, Dr. MAYNE has called attention to certain complications which are not of common occurrence. Among these, he mentions phlebitis, both adhesive and suppurative, a peculiar form of dropsy, and spontaneous salivation.

41. *Pancreas—Abscess of.*—The diseases of the pancreas are so little understood that every case calculated to throw light on the subject is of importance. Dr. KILGOUR relates an instance of abscess of the pancreas, which occurred in a man, æt. 41, who had been a great eater. The most prominent symptoms were vomiting, flatulence, and emaciation. After a time, he had rigors of an intermittent character, after which the progress of the case became rapidly unfavorable. In commenting upon the case, Dr. Kilgour remarks that the most obvious features were the vomiting and wasting. He seems to think that when obstinate vomiting occurs, principally of a mechanical character, where the matters ejected are thin, ropy, sour, tasteless, or saltish, and when these symptoms are accompanied by hardness, and tumour in the pancreatic region, we should be warranted in locating the disease in that organ. At present, however, it must be confessed that there is much wanted to give precision to our diagnosis in such cases.‖

42. *Ascites—Treatment of, by the Endermic Use of Diuretic Medicines.*—Some time since a paper appeared in a French periodical, recommending the treatment of ascites by means of a liniment containing tincture of squills and

* October, 1850.
† London Journal of Medicine, Sept. 1850.
‡ Medical Gazette, July 12, 1850.
§ Guy's Hospital Reports, Oct. 1850.
‖ London Journal of Medicine, Nov. 1850.

tincture of digitalis. Dr. CHRISTISON having at the time a case of a boy, æt. 10, under his care with ascites, resolved to give it a trial. He had previously exhibited brisk purgatives and diuretics for a period of six months, without controlling the effusion, which had gradually been increasing. Under these circumstances, a mixture of soap liniment, tincture of digitalis, and tincture of squills, was then directed to be rubbed into the abdomen morning and evening. At the end of three days the urine was increased for the first time, the ascites began to diminish, and in about fourteen days entirely disappeared. The boy at the same time gained flesh; and under the use of chalybeates his strength was entirely restored.

The same treatment was tried in several other cases, but with disappointment; in all these, however, there was reason to suspect organic disease of the liver. In a second case, another cure occurred equally satisfactory with the first.

A boy, æt. 9, had enlarged liver and ascites for a twelvemonth. The ordinary remedies had been employed without benefit. At length the distension was so great that tapping appeared absolutely necessary, but before resorting to it Dr. Christison tried the diuretic treatment, but as friction caused irritation of the skin, a very strong infusion of digitalis was applied by linen cloths covered with oiled silk. In a few days profuse diuresis set in, and the whole dropsical effusion quickly vanished. The boy died from other causes.*

§ V. *Diseases of the Genito Urinary System.*

43. *Pathological Signification of the Dumbbell Chrystal.*—In the American Journal of the Medical Sciences† Dr. FRICKE calls in question the generally received opinion first promulgated by Dr. Golding Bird, that the dumbbell chrystals, are to be taken as an indication of the presence of oxalate of lime in the urine. Dr. Fricke says that he has long doubted the correctness of this opinion, and believes that they are in reality only disintegrated chrystals of uric acid.

This view of the origin of the Dumbbell chrystals is confirmed by some observations recently published by Dr. MARCUS WILSON. This gentleman states, moreover, that the chrystals in question are not only produced in urine, as the result of some modification in uric acid, but that they are also to be met with in solutions of a variety of salts, as well as in certain inorganic fluids. In watching the formation of these chrystals, Dr. Wilson has satisfied himself of their appearance in urine acid deposits, on the addition of hydrochloric acid, subsequent to the solution of the former in caustic potash.‡

44. *Occurrence of Starch Granules in Urine.*—This appearance has been noticed by Mr. BALMAN § and Dr. FREEMAN,‖ the latter considers that it is to be explained upon the supposition that bread crumbs, from their universal presence in domestic arrangements, get accidentally mixed with the urine.

45. *Albuminous Urine and Dropsy—Proximate Cause of.*—Dr. JOHNSON, whose researches on urinary pathology have already made him well known to the profession, has given the results of further investigation, in a paper which appears in the recent number of the 'Medico-Chirurgical Transactions.' His object, in this communication, is to point out the immediate cause of the

* Edinburgh Monthly Journal, Nov. 1850.
† July, 1850.
‡ Lancet, Oct. 19, 1850.
§ Medical Gazette, Nov. 8, 1850.
‖ Ib. Nov. 22.

two symptoms, albuminous urine and dropsy. In doing this he first refers to an interesting law in physiology, that free circulation in capillary vessels not only requires a propelling force of the heart, but also an integrity in the mutual reaction of the contained fluid and the lining membrane of the vessels; i. e., in the process of secretion and nutrition. The application of this law he then illustrates as follows:—

"In tracing a case of acute dropsy, after scarlatina, it is usually found that the surface of the body has been exposed to cold, and that the poison, the elimination of which by the skin is thus checked, is thrown upon the kidney. The result of this is desquamation of the renal cells, and the obstruction of a greater or less number of the tubes. This leads to non-secretion, and consequent remora of excrementitious matter in the blood. The circulation of this impurified blood operates by inducing retardation of the circulation in the outer tubular plexuses, which is further propagated backwards through the Malpighian bodies and arteries. The obvious consequence is the exudation of the serum, or even rupture of the parietes of the vessel, and escape of blood, if the distension pass certain bounds.

Still more satisfactory evidence of impeded circulation is, according to Dr. Johnson, afforded by miscroscopic examination of the blood-vessels themselves; by which it is seen that the coats of the arteries and Malpighian capillaries are greatly thickened, while the inter-tubular capillaries and branches of the emulgent vein are unaltered.

The dropsy attendant upon renal disease admits of the same explanation; viz., capillary obstruction, from circulation of impure blood, and consequent serous exudation.

§ VI. *Diseases of the Skin.*

46. We have great pleasure in observing the continued regular appearance of Mr. Wilson's magnificent 'Portraits of the Diseases of the Skin,' Parts 7 and 8 of which are now before us. We have already expressed our unqualified approbation of this unequalled performance, and have therefore, on this occasion, merely to mention the subjects elucidated. These are 'Scabies Vulgaris,' which is almost too natural to be pleasant to touch; 'Lichen Syphiliticus Tuberculatus Annulatus; Lupus non-exedeus; Lichen Annulatus Serpiginosus; the Erythema Marginatum of Bateman; Sycosis; Molluscum; Pemphigus; and Lichen Syphiliticus Corymbosus.

We have also to notice the completion of Dr. Thomson's work on skin-diseases, under the superintendence of Dr. E. Parkes.*

An interesting series of papers on Syphilitic Diseases of the Skin, by Mr. Wilson, is in the course of publication in the 'Lancet,' 1850.

§ VII. *Materia Medica and Therapeutics.*

47. *Turpentine.*—A brochure, on the therapeutic virtues of turpentine, has been published by Dr. Thomas Smith;† in which will be found a minute

* A Practical Treatise on Diseases affecting the Skin, by the late Anthony Todd Thomson, M.D. F.L.S., and completed and edited by Edmund A. Parkes, M.D. London, 1850.

† A Practical Treatise on the Therapeutic Uses of Terebinthinate Medicines, with Observations, &c., by Thomas Smith, M.D., &c. London, Longmans.

account of the diseases in which it proves useful, and the best methods of exhibiting it. It is used both externally and internally; in the former case proving, in the author's opinion, one of the most effective epispastics we possess.

As a purgative turpentine ought not to be given alone, in large doses, or in damp weather, as under such circumstances it may be consumed in the evolution of heat, rather than influence the bowels. Dr. Smith thinks that the dose should never exceed half an ounce, and should always be combined with some other aperient.

As an astringent and styptic, turpentine is very efficacious, and is applicable to most forms of internal hæmorrhage.

The diseases for which the author claims its superiority are hæmatemesis, hæmaturia, hæmoptisis, epistaxis, purpuria, worms, rheumatism, cholera, and some diseases of the nervous system. Of all these affections cases are appended in illustration. In rheumatism, the use of turpentine or camphine, in a bath, is spoken of. The bath consists of a mixture of camphine and soda, two pounds of the latter to half a pint of the former, to the usual quantity of water. This bath, the author informs us, possesses peculiar virtues; no annoyance is produced by the vapour, and it acts as a sedative to the vascular system. Its action on the skin is described as peculiarly agreeable.

48. *Sumbul* is the name of a medicine lately introduced to notice by Dr. Granville.* It is derived from an umbelliferous plant which grows in Bucharia, upon the banks of rivers and other swampy soils; in form it somewhat resembles the root of the white hellebore; it has a strong musk odour; the taste is first sweet, and afterwards aromatic.

The diseases enumerated by Dr. Granville in which this drug has been recommended and employed are, nervous disorders, hysteria, paralysis, epilepsy, and in chlorosis and some gastric affections; it has also been used extensively in cholera. The drug is given in the form of powder, decoction, or ethereal tincture. We do not find that Dr. Granville's observations have been confirmed. Should there be anything in the medicine, it will doubtless soon be known.

49. *Kousso.*—Our "extracts" contain some notices of this new vermifuge. Numerous isolated cases have been recorded; and we have personal knowledge of those in which the drug has perfectly fulfilled the high encomiums bestowed upon it. Its price still precludes its frequent employment.

50. *Filix Mas.*—Mr. Hooper has prepared a tincture of this vermifuge, which he asserts to be more certain in its operation than the kousso.

51. *Linum Catharticum.*—Mr. Butler Lane informs us that he has during the last twelve months administered the linum catharticum extensively, and can speak highly of its efficacy in various complaints. He states that he has never seen its use attended by any dangerous symptom, and rarely by any unpleasantness. In catarrhal maladies he has found this simple remedy exceedingly effectual, and also in those subacute rheumatic complaints, which are often alike troublesome and intractable. In the cure of affections of the throat and air passages, he considers the counteracting effect to depend on the peculiar stimulation of the mucous and muscular structures of the alimentary canal, and the sympathetic influence extended to the glandular organs connected therewith. Where the morbid action is of rheumatic character, the curative agency is manifested more slowly, and in apparent

* The Sumbul, a new Asiatic Remedy in Nervous Disorders, &c., by A. B. Granville, M.D. F.R.S. Pamphlet.

dependence on the diuretic action; this diuretic action, doubtless, has a modifying power on the constitution of the blood and its relation to the nervous fibre; and thus an alteration is effected in the abnormal dynamic state, on which the rheumatic diathesis depends. In chronic rheumatism, especially when affecting muscular structure, such as lumbago, the use of the linum catharticum is remarkably beneficial. The diuretic power of the linum catharticum is readily manifested when the medicine is administered at short intervals; its action is mild, and unattended with inconvenience. In cases of ascites connected with hepatic disease he has found it very efficient.*

52. *Ricinus Communis.*—The castor-oil plant is spoken of as a powerful galactagogue and emmenagogue medicine when applied externally. Dr. M'William, who first called attention to this fact,† gives the following description of its use in Africa.

"In childbirth, when the milk is delayed, a decoction is made by boiling a handful of the plant in six or eight pints of water, with which the breasts are bathed for fifteen or eighteen minutes; part of the boiled leaves are also spread over the breasts. This process is said generally to induce a flow of milk in a few hours."

—The truth of this statement has since been tested by Dr. Tyler Smith,‡ with leaves from plants growing in the Botanical Gardens of Kew, Chelsea, &c. His account of its powers is highly favorable. He has also used it with effect in amenorrhœa; in this case, in addition to fomenting the breasts, the genital organs were submitted to the steam arising from the decoction.

53. *Cedron.*—The seeds of this tree are used in Central America as an antidote to the bite of venomous reptiles, and is said to be infallible if applied sufficiently early. It is used both internally and externally. A tincture, made by macerating the seeds in brandy, is a favorite formula. It is said, also, by Dr. Cazentre,§ to cure hydrophobia in dogs.

* Medical Times, July 13, 1850.
† Lancet, Sept. 7, 1850.
‡ London Journal of Medicine, October.
§ Gazette Médicale.

II.

REPORT ON THE PROGRESS OF SURGERY.

BY THOMAS WILLIAM CROSSE, ESQ., NORWICH.

In our report upon this department of Medical Science, we have to notice the publication of the following works:—

I. *Surgical Anatomy of the Arteries.* By JOHN HATCH POWER, M.D.

II. *The Treatment of Secondary Syphilis.* By Mr. LANGSTON PARKER, of Birmingham.

III. *Principles of Surgery.* By JOHN A. ORR, Esq., Dublin.

IV. *Of the Crystalline Lens and Cataract.* By B. E. BORDHURST, Esq., London.

V. *The Anatomy, Physiology, and Pathology of the Eye.* By HENRY HOWARD, Esq., of Montreal.

VI. *The Diseases of the Breast.* By J. BIRKETT, Esq., London. (Jacksonian Prize Essay, 1848.)

VII. *The Principles of Surgery.* By JAMES MILLER, Esq., of Edinburgh.

VIII. *Operative Surgery.* By F. C. SKEY, Esq., of London.

Of these, the two latter are treatises so comprehensive and complete that it would be impossible, in the brief space allotted for our Surgical Report, to do the authors justice, by a review of their works as a whole. But as it is deemed advisable to follow the divisions made by previous reporters into sections, of diseases affecting different organs, inasmuch as it facilitates reference, various abstracts will be made from these works, and appended under the several sections; the selection being made with a view of embracing those subjects which are novel, or those opinions which are peculiar to the authors, as well as those topics which are more especially at the present time engaging the attention of the profession.

But we are unwilling to pass over in this summary manner so valuable a work, and one so much needed by the profession, as that on Operative Surgery, by Mr. SKEY. To every medical man, as well as to every medical student, it must become essential; for the principles and precepts it inculcates are based upon the very best of foundations—experience, "the chief philosopher, but saddest when his science is well known."

"The following work," says Mr. Skey, in his preface, "was undertaken in compliance with the advice of some professional friends, who, equally with myself, felt the want of a book on the subject of Operative Surgery, which might become, not simply a guide to the actual operation, and embrace the practical rules required to justify the appeal to the knife, but would embody, at the same time, such principles as should constitute a permanent guide to the practitioner of operative surgery, and without which all claim to its scientific character is lost.

"As in the pursuits of practical surgery the knowledge of 'principles' ex-

ceeds greatly in value that of the details of practice, because the principles form the rule of conduct, and the practice the deduction, so a knowledge of the principles of operative surgery, which ought to regulate the conduct of the surgeon in undertaking even the least critical forms of operation, is all important as the guide and loadstone of our conduct. It is a consideration of far less moment in what manner an operation is performed, provided it be executed with safety, than is the previous decision of its actual necessity. The question of appeal to the knife involves the principle, its employment the practice of operative surgery. In no department of professional duty are the rules of conduct so imperative as in that which proposes the removal of a portion of the body, or the exposure of its internal structure by instrumental agency, because the effect of local violence is always felt as a blow to the integrity of the frame, although the operation itself, thanks to a great modern discovery, may be rendered painless. To write a work on operative surgery, which should consist of merely mechanical rules for the performance of an amputation, for example, would be to leave the work more than half unfinished, simply because the knowledge which determines the necessity of the undertaking is far more valuable, and far more difficult of attainment, than that which is required to qualify a surgeon for its performance. The one qualification involves both the moral feeling and the intellect of the surgeon; the other demands the exercise of the physical functions only.

"Operative surgery, viewed as an abstract question, is but a proof of the insufficiency of the curative means in our profession; it is not, however, to be on this account the less highly valued, for it is a most important adjunct to the fulfilment of a common object in all cases of disease, namely, the prolongation of life—hence it should be studied for itself alone,—and every practitioner should be fully possessed of all that knowledge, should endeavour to acquire all those accomplishments, and to make himself master of a certain portion of that dexterity which can only in the hour of need, and in the absence of practical experience, render him assistance.

"The requisite qualifications for an operating surgeon are partly moral, partly intellectual, and partly physical. Moral, indeed, in the most extensive application of the term, whether applied to the government of himself, or to his relations to the world. A man is disqualified for these duties who cannot divest his mind of the sense of all personal advantage accruing to him from the performance of an operation; who cannot, in imagination, place himself in the position of his patient, and reflect on the case in all its bearings, and calculate the result, as though his own personal health were directly involved. The moral relation of the surgeon to his patient also proves, in many examples, an important item in the calculation of the issue. The larger the share of confidence entertained by the patient in the skill and resources of the surgeon, the more fully will he be able to divest his mind of apprehension as to the result: he convinces himself that the operation has become a necessary evil, leaving no reasonable alternative to its performance, and he buckles on his armour for the effort. At such a time a man is an object of just and natural sympathy; and it is rare that sympathy does not tell beneficially upon his mind, provided its expression did not betray, on the part of the surgeon, a nervous disquietude lest the extent of suffering be greater, and the issue more uncertain, than has been represented. A peculiar kindness, and in the example of a female or a child, even of tenderness of manner, begets a confidence, which, without betraying weakness or uncertainty, fortifies the patient's mind and reconciles it to the effort. A perfect knowledge of what he is about to undertake is amongst the most important requirements of the operating surgeon. The nature and form of every operation should be thoroughly deter-

mined on before it is commenced, and under the circumstances of any unusual form of operation, or of his own limited experience in such as may be common to others, every detail should be made the subject of his anxious deliberation and forethought. A large experience can alone supply the place of this practice. But no previous study or reflection can supersede the necessity of a perfect intimacy with the structure of the region about to be operated on. A surgeon may get through an operation here and there, who is ignorant of the anatomy of the part, but no man can aspire to the reputation of a successful operator, who is not familiar with the anatomy of the entire body, and who not only knows under what circumstances he may endanger life by the division of important structures, but who possesses that almost equally important knowledge, viz. where he may divide and dissect without danger. This negative knowledge is valuable, because, as it insures confidence in the informed surgeon, it enables him to proceed rapidly and boldly onwards in the execution of his task, avoiding an evil incidental to bad operators, viz. that of *picking* in pieces those structures that should be freely and rapidly divided with the knife.

"Dissection alone can teach us, not simply the movements of the knife as effected by the hand, but the real use and value of the instrument. An unpractised operator is in difficulty unless his knife be fashioned after a particular form, and retain its perfect edge. The experienced operator, if it may be so expressed, *can get more out of a knife.* It will continue longer obedient to his will, it will do more work, and is less damaged by *his* actions than by those of another man.

"To natural or acquired dexterity of hand, and an intimate knowledge of the structure of the body, should be added by the operator, the yet further requisite of self-confidence;—confidence in his own powers, and confidence in his possession of all the requisite knowledge to carry out his end. He should possess great firmness of purpose, founded on the only soild basis of rectitude of intention; a command of resources against difficulty or danger, to be acquired only by previous thought and preparation; and a self-possession which no accident, however unlooked for, can disturb or alienate."

We would particularly recommend for perusal the chapters devoted to the subjects of Aneurism, Amputation, and Dislocation, to which the author has given considerable care and attention, and of which abstracts have been made in this volume. Mr. Skey gives also a detailed account of his recently introduced tourniquet, a description of which will be found in the abstract on Surgery. In conclusion, we would state, that the work is embellished throughout with numerous and well-executed etchings.

§ I. *Injuries and Diseases of Arteries and Veins.*

Under this section we take the opportunity of noticing a work by Dr. Power. This publication is intended as a new edition of the late Dr. Flood's '*Surgical Anatomy of the Arteries*,' a work of great repute. To quote the author's own words, "Notwithstanding the high opinion entertained of the original, I have thought that much might be done towards rendering it still more acceptable to the student. I have accordingly made such alterations in it as I conceived were most likely to effect this object. It will be seen, therefore, on a comparison with the original, that the present contains many most important additions. Among these we may refer to the Anatomy of the Heart; of the Arteria Innominata; of the Subclavian Arteries, and the operations performed on these trunks; of the Axilla and the Axillary Artery;

the operations on the Brachial Artery, and the cure of Aneurism of this vessel by compression; to the Circulation of the Blood in the Liver and in the Kidney; to the Iliac Arteries, and the operations upon these important vessels and their branches: and to the Femoral Artery, &c. I have attempted to lay before the student such plans of treatment as have been lately adopted for the cure of aneurisms of the larger vessels. The operation, which consists in the application of a ligature on the vessel at the distal side of the aneurismal tumour, has been considered, and cases are detailed in which it has been performed. The mode of treating aneurism of the popliteal artery, by means of compression made on the femoral artery, between the aneurism and the heart, has also been noticed, and the history of the treatment, so successful in this country, has been introduced to the attention of the student."

We have made the following extract for publication:

2. *Operation of tying the Brachial Artery.*—"By far the most frequent forms of aneurism of the brachial artery are those which are the result of injuries inflicted upon the vessel, as in the operation of venesection at the bend of the elbow. When the artery has been unfortunately wounded, the following results may happen:—First, the blood may escape freely from the wound in the artery, and may pass into the cellular tissue in the limb, to a greater or less extent; in some cases, the extravasation of arterial blood is so considerable as to reach nearly as high up as the folds of the axilla, and for a certain distance also below the elbow joint; this has been termed a *diffused false aneurism.* This form of aneurism may occur, also, from too great an amount of pressure having been applied to the sac, for the cure of the next variety we shall speak of, namely, the *circumscribed false aneurism,* the sac gives way, and the blood becomes diffused through the limb.

"Secondly,—After the infliction of a wound upon the artery, the blood may escape at once directly through the external wound; if pressure be now made upon the wound, the general diffusion of the blood may be prevented, and a process of thickening may be set up, in the cellular membrane surrounding the small quantity of blood which has insinuated itself between the wound in the artery and the integuments; this thickened cellular membrane becomes matted together by the effusion of coagulable lymph, and is ultimately converted into the cyst of the aneurism, which communicates with the canal of the wounded artery; this has been termed a '*circumscribed false aneurism.*'

"Surgeons are now generally agreed as to the proper mode of treatment in cases of false aneurism of the brachial artery. The single ligature, which may be sufficient in the circumscribed aneurism, is not to be depended on in this form. When the wound in the vessel is large, when the extravasation of blood becomes considerable, when the tumefaction of the limb extends upwards along the arm, and occupies also the upper portion of the forearm, accompanied with pain and discoloration of the integuments, compression will be worse than useless, and the single ligature on the artery leading to the wound will not suffice; the free anastomoses of the vessels about the elbow-joint will allow the blood to flow freely from the wounded artery, and the hæmorrhage will continue without control. In a case of this description, therefore, the only operation which can with confidence be relied on, is to cut down with a free incision upon the wounded vessel, to turn out the coagulum of blood, and to tie the artery above and below the wound. In speaking on this subject, Professor Harrison observes, "I now believe that very few cases of diffused aneurism, either of this or of any other artery, will admit of cure from the simple operation and application of a single ligature to the artery above the injured part, but that it will be almost always necessary to lay open the tumour by a long incision, which should include, if possible, the original

wound. When the injured vessel shall have been exposed, it may be raised by a probe, either introduced into it through the wound, or the aneurism needle passed round it, and the artery tied first above and then below the opening." Professor Porter observes, "but there is still another case, and let us suppose a limb, into which a quantity of blood has been extravasated, not sufficient to cause a gangrene of the part, but still too abundant to admit a hope of its being absorbed. Here, I apprehend, the surgeon has no choice; he must cut down, turn out all the coagula he can reach, in this way getting rid of that which would be a subsequent source of irritation, and then tie the vessel above and below the aperture."

We are anxious, however, to impress upon the mind of the student, that in cases of simple puncture of the brachial artery, as in venesection, or where there is no extensive effusion of arterial blood to create alarm, there is no necessity for immediate operation. The constitutional disturbance consequent upon the wound, and the alarm into which the patient is thrown from the agitation and terror betrayed by the unsuccessful operator, at the instant when he is aware of the mischief he has done, added to the shock sustained by the alarm and precipitancy of a hasty operation performed under such circumstances,—all contribute to induce such a state of the patient's system as to render it very unfavorable for the healing of the wound; and secondary hæmorrhage has been known to result from such unnecessary interference. In cases, therefore, not demanding immediate operation, the student is recommended to apply judicious compression, by means of graduated compresses tied carefully one over the other upon the wound, so as to correspond to the orifice of the bleeding vessel, and to surround all by means of a figure of 8 bandage, coiled round the elbow a sufficient number of times to secure the compresses in their proper situation. Another form of bandage has been preferred by some surgeons,—it is called the "gantelet," of Genga; it consisted of narrow strips of bandage, with which each finger was enveloped separately; these met above the wrist, from which point a broader roller was carried round the forearm, and round the elbow over the compresses which had been previously applied; the bandage was also carried round the arm up towards the axilla. This mode of treatment by compression, in conjunction with proper position, absolute rest, low diet, &c., has proved, in such cases, decidedly successful, and until it fail the operation is unnecessary, and may be mischievous. (p. 100.)"

3. *Operation on Wounded Arteries.*—The surgeon is frequently called upon apply a ligature around an artery in consequence of a wound in the vessel causing hæmorrhage. In no form of accident or injury are his knowledge, his manual dexterity, and his patience and self-possession more in request than on the occasion of hæmorrhage from a large and deep-seated artery. A knife, or other cutting instrument may have penetrated or have transfixed a limb. If the bleeding be considerable, it is obvious that a large artery is wounded. Certain indications generally present themselves when the accident has involved a large vessel. The line of the wound points in the direction of the main artery of the limb; the flow of blood is very copious, resisting for a time the efforts of the bystanders to arrest it; the escape of the blood is attended by an audible rushing sound; syncope follows the first flow; the patient's face is pallid and its expression betokens alarm. Such symptoms would usually attend hæmorrhage from the iliac or femoral arteries, and the branches of the secondary class.

If the wound has penetrated the limb lower down, or transfixed it through, or nearly through, the centre, in a transverse direction, we may have some difficulty in determining what vessel is the seat of the injury. It may be the

radial or ulnar, the posterior tibial, or peroneal. But, be it where it may, the safety of the patient almost invariably requires that we explore the wound, expose it to view, and pass a double ligature around the bleeding vessel. When such a case presents itself, the first measure to be resorted to is to put a tourniquet around the limb above the wound, which, supposing the hæmorrhage to have ceased, may be applied with moderate tension so long as the surgeon or some competent representative be near at hand.

The next duty of the surgeon, having placed his patient in safety, is to make all needful inquiries into the case, the nature of the accident, &c. He may learn with advantage the kind of instrument that caused it; he may pass into the wound a probe or a director, not known for the purpose of reaching the artery, which would be perfectly useless, but simply for that of ascertaining the direction of the wound. It is very desirable that he acquire accurate knowledge of the nature and extent of the hæmorrhage, on which subject great deception avails among the bystanders, who amplify to a most erroneous degree, and mislead the surgeon from the truth. It would be desirable, if practicable, that the surgeon should himself bear witness to the amount of hæmorrhage that has occurred. The chief advantage of this information is, that it may enable him to form a tolerably correct opinion as to the size of the wounded vessel, and thus determine the operation he will perform.

Suppose a man to have sustained a punctured wound on the inner part of the thigh; if the surgeon can ascertain that the rush of blood was vehement, that it was attended with a gushing sound; that the patient became rapidly pallid; that his clothes and a large quantity of linen, became quickly saturated with blood, and finally, if on examination by the probe, the wound takes the direction of the trunk of the femoral artery, scarcely a doubt will exist in his mind, that the main artery is wounded. While, supposing the direction of the instrument to have passed in a line half an inch only backwards through the limb, a perforating artery may be the seat of the injury, and all the above symptoms may be greatly modified in degree, although the report of the witnesses will still declare the loss of blood to have been most alarming. To the timid and inexperienced practitioner, such forms of hæmorrhage are alarming; for ignorance and inexperience are natural and reasonable sources of alarm in such cases. If there be one trait above another that preeminently characterises the experienced and the competent surgeon, it is the perfect self-possession with which he undertakes and conducts to its close an operation of this kind. A large hospital and a long experience constitute the best conditions for its acquisition. A thorough knowledge of the arterial system is indeed indispensable, and that alone can give us confidence in our own power to meet the endless variety in the catalogue of these injuries, as they occur in hospital practice.

When we have reason to believe that a large artery is wounded, it is usually our duty to tie it at once. There may be circumstances, however, under which we are perhaps justified in the resort to pressure as the means of obtaining obliteration of the artery in a punctured wound. If many hours have elapsed without a return of bleeding; if pressure could be efficiently applied on the vessel in the direction of the bone, as in the case of the femoral artery punctured half-way down the thigh, or a very impaired state of the subject, or a great liability to erysipelas,—such arguments might be urged in such cases as extenuating circumstances, justifying the resort to pressure, under the protecting influence of a permanent tourniquet. But, under almost all circumstances, we should tie the artery.

When we have reason to feel confident, in our knowledge of the nature of

the injury, and in that of the artery wounded, we have the option either to follow the puncture, by dilating the wound in its course, or to reach the artery, which we have good reason to consider the seat of the wound, by what I may term an anatomical and more direct path. In the first operation, the director, introduced through the entire depth of the wound, is our guide. It has the great objections of a wound probably of considerable depth, and made through the substance of any muscle or muscles divided by the instrument; the counter-advantages consisting in the great probability of reaching the wounded vessel. It may happen that the artery which is wounded lies considerably nearer to the opposite side of the limb, and from which it is reached with facility. The direct route to an artery is that which of course would be usually selected, though it may labour under the disadvantage of uncertainty as to the vessel wounded; but it may yet prove the preferable operation, especially if, as in the case of a wound in the profunda or perforating arteries of the thigh, nearly the same operation will be applicable to the two vessels.

When the wounded artery is exposed to view, and the aperture in the vessel distinctly seen, two single ligatures should be placed around it, one of which should be tied above, and the other below the wound, each at a distance of a third of an inch from the puncture; the office of the lower ligature is to prevent the return of hæmorrhage by the collateral circulation. One end of each ligature may be removed, and the two remaining ends brought out through the outer wound which should be healed by the first intention, if possible, in order to obviate the consequences of extensive suppurative action being established. The operation, for the same reason, should be done with as little violence as possible to the structures divided, for if the wound be continued, and the surfaces jagged, it may prove a serious obstacle to such form of primary union of its opposite sides. If the operation be much protracted, and the injury to the surfaces consequent on the difficulty of finding the wounded vessel be great, it would be desirable that *all the exposed portion* of the artery be insulated by the two ligatures—placed as widely asunder as possible, lest the vessel inflame in common with the parts around, and again give way.

It is a considerable aggravation of injury if the vein be also wounded or transfixed by the instrument. This circumstance renders the result less promising, but cannot justify any departure from the principle of the operation. The wounded vein must be cut off from the circulation by means of one or two ligatures. I say one or two, because the valvular structure of these vessels, their profusion in number, and the comparatively torpid movement of the blood in them, may justify the application of a single ligature below the wound. Yet there would appear to be little reason in rejecting the second. An opinion is very prevalent in the profession that a ligature applied around a vein is the cause of danger, by promoting inflammation along its coats. That such inflammation may be an occasional occurrence is indubitable; but it is certainly by no means a frequent one. I believe the reports of danger consequent on the application of a ligature round a vein, to be greatly exaggerated. In the case of a puncture, however, we have no reasonable alternative but the ligature, and I know of no evidence of any injurious consequences to the vein which would justify us in rejecting it.*

4. *Pyæmia.*—By this term is understood a peculiar and formidable constitutional disturbance, supposed to be dependent on the admixture of pus in the circulating blood. At the same time, however, it is right to state that

* Vide Skey, op. cit., p 198.

examples are not unfrequent of symptoms closely similar in kind and urgency, in connection with which admission of pus into the circulation cannot be traced. When the purulent admixture does occur, it is direct, not by absorption. For, as formerly stated, there is good reason to believe that pus-globules cannot pass through the vascular walls entire; it is the serum alone which thus regains the vessels' interior. And it is generally understood that absorption of merely the serous part of pus is not likely to be followed by grave consequences; unless, indeed, it have previously undergone some decided change from the ordinary normal condition.

Pus may be admitted into the vessels in various ways. In a suppurating wound, venous orifices may be free and gaping, and pus may be unwisely forced to remain accumulated there. During the progress of unhealthy ulceration, venous canals may be opened into lymphatics, inflaming, may feed themselves with pus. But, above all, suppurative phlebitis cannot fail to cause purulent pollution of the blood, both rapidly and to great extent, if, unfortunately, the action be of that kind in which the exuded pus is not limited by solidification of the vein's contents. If, in addition to mere purulent admixture, there be putrefaction or other deterioration of the pus itself, or the presence of some other poisonous morbific agent, then the symptoms may be expected to prove especially untoward and unmanageable. How the pus acts deleteriously it is not easy to determine. It may be by exerting a poisonous influence on the blood, and thence on the whole frame. But there is good reason to believe that the corpuscles act somewhat mechanically; becoming obstructed in the capillaries, and operating there as exciting agents of intense inflammatory action, which is asthenic, and runs rapidly on to suppuration; occurring in a part and system of diminished vital power, and disposed to evil results.

The symptoms have been graphically described by M. Sedillot :—

"A patient is attacked by suppuration, when suddenly—either without any premonitory symptoms, and some days after a hæmorrhage, a diarrhœa, a diffuse inflammation, a phlebitis, an erysipelas, or a painful engorgement of a wound—a more or less violent shivering fit comes on. Frequently there is observed a general trembling, chattering of the teeth, a drawing in of the limbs towards the trunk, and a morbid diminution of temperature of the skin; speech is difficult, the words uttered being short and interrupted; the eyes are hollow, and the features contracted; the countenance is of a leaden or yellowish colour; the respiration frequent; the pulse small, soft, and rapid, and an instinctive sense of great peril is presented.

"The shivering ceases after a period varying from ten to forty-five minutes; the warmth of surface returns, and a slight transpiration is established. Erratic shiverings, however, return, and not unfrequently at the same hours as in the first instance; the wound dries up, or the suppuration becomes grayish and fetid; the surfaces of wounds assume a withered, flabby aspect, the bones become denuded, and ill-conditioned ulcers arise or extend. The patient seems as if exhausted by fatigue, and plunged into a kind of *coma vigil*, with occasional delirium, or into a deep stupor; the inspirations are made laboriously, and become more and more accelerated, so that 30, 40, and 50 per minute are counted; the breath exhales a purulent odour; sub-crepitating râles are heard in the chest, the air also not seeming to attain the minuter bronchial ramifications; the skin becomes daily more earthy, yellowish, generally as if jaundiced; articular pains, with swelling and intra-synovial effusion, manifest themselves successively in the various joints; one or both of the calves may become the seat of considerable swelling, attended with great suffering; and sometimes severe stitches in the side of the chest force cries

from the patient. The tongue becomes dry, the lips and teeth are covered with a fuliginous paste; the belly is tender; the pulse tremulous and rapid; subsultus agitates the limbs; the eye looks dull, the cornea has lost its polish; the bladder is no longer emptied; partial paralyses may manifest themselves; the voice is lost; and the patient dies from the fourth to the eighth day, in a state of extreme emaciation, and after a prolonged struggle. These are the most common traits of purulent infection, but it is seldom that we find them all present.

"Any wounded person having a suppurating wound, in whom irregular shiverings, difficulty and frequency of respiration, a leaden or icteric colouring of the integuments, great prostration of strength, and sudden wasting manifest themselves, is in our eyes, the subject of pyæmia. We would deliver the same opinion, if, in the absence of shivcrings, the above-named symptoms were present, together with a drying of the wound, or a changed character in its discharges. The existence of an ascertained phlebitis allows of our pronouncing upon the invasion of pyæmia the moment the local symptoms become complicated with shivering, prostration, yellow colouring of the integuments, and altered respiration. Arthritic pains and effusions, disorders of the nervous system, the typhoid appearance, induration, an abscess of the calves, &c. &c., add but additional degrees of certainty to our diagnosis.

"During life, pus may bc detected, in most cases, in the blood, by means of the microscope; although here there is an obvious source of fallacy, in consequence of the great difficulty of distinguishing pus-globules from the normal colourless corpuscle of the blood. After death, abscesses are found in the lungs, liver, spleen, brain, kidneys, heart, pleura, joints, muscles, subcutaneous areolar tissue. The lungs are by far the most frequent site; and these, in addition to suppurative patches of less advanced inflammatory action, may also be found. Of muscles, the deltoid and the pectorals are those most frequently involved. Wherever situated, such abscesses are almost never single; internally thcy are seldom even few in number; often they may be counted by hundreds in the aggregate.

"Treatment is more hopeful in prevention than in cure; avoiding the exciting causes of erysipelas and phlebitis, modcrating ulcerative action in sores, keeping wounds light and free, so as to prevent accumulation of matter within; having no crowding of wards, community of dressings, or sources of mephitic vapours; in short, rigidly enforcing hospital hygiene.

"When thc evil is traceable to a suppurating surface within reach, some have confidence in applying the actual cautery freely to this, with a view of cutting off the noxious supply.

"For the constitutional symptoms no fixed plan of treatment can be laid down. We are guided by the general therapeutic principles applicable to constitutional irritation.

"Prognosis is doubtful. Some patients emerge happily, leaving nothing but the scars of external abscesses; others escape with life, but permanently damaged in both trunk and limb; many sink and die.

§ II. *Injuries and Diseases of Bones.*

5. *Fracture of the neck of thigh bone. Spontaneous cure.*—A case is reported of a fracture of the femur, in which a spontaneous cure seems to have been effected. The patient was under Mr. STANLEY's care, at St. Bartholomew's Hospital, and was sixty-three years of age, a very eccentric character, and

apparently in good health. The account she gave to Mr. Stanley was first very obscure and unintelligible, but after a good deal of trouble it was made out that she had met with a fall ten weeks ago, by which she had injured her hip; she was obliged to give up her occupation as a servant, and after having stayed at home without any surgical assistance for the time above mentioned, she applied to the hospital. She had walked into the ward with a little support, and when examined by Mr. Stanley, the limb was found neither inverted nor everted; it had suffered a little shortening, to the extent of about an inch and a half, but the head of the femur played very freely in the acetabulum, and no pain was produced by the movements of the joint.

The reporter of the case remarks, "It is very likely that this patient will, after enjoying the rest and the comfort of an hospital, regain the use of her limb with a slight amount of lameness, and have escaped the frequently fatal consequences of confinement, by solely trusting to the unaided powers of nature; and the question is proposed, 'Should a patient advanced in years be subjected to such confinement, when the neck of the femur is fractured, as is usually adopted, with a view, and for the purpose, of promoting osseous union.'"*

6. *Removal of the superior maxillary bone.*—Mr. Tatum, of St. George's Hospital, reported a case of this operation, of which the following is the history:—

A woman, æt. 56, was admitted with a tumour on the left side of her face. It appears that she had experienced pain in her face for the last seven months; a tooth was extracted without relief, and about two months ago, some enlargement was perceived over the maxillo-malar articulation. This rapidly increased to within about three weeks; no discharge of blood or pus was taking place through the nostril, but the tumour was the seat of a pain of a dull and lancinating character. Her health is pretty good, and she presents now, on the left side of the face, a large tumour, of a pyramidal form, extending from the lower border of the orbit to the alveolar process of the lower jaw, and from half an inch external to the ali nasi, across the maxillary and malar bones, to the zygomatic fossa, its apex situated over the maxillo-malar articulation, for a prominence of about three inches. In addition to this large tumour, there are two or three small offsetts, the size of hazul-nuts, situated at the anterior part of the floor of the orbit, and obstructing vision, by pushing up the lower eyelid in contact with the upper. The tumour, generally is hard and firm, but in one or two small portions it presents a softer character, and the skin over, though rather discoloured, and in the centre rather connected with the morbid growth, is apparently unaffected by the disease. The arch of the palate is natural, and no tumour can be felt on passing the finger round the soft palate into the posterior nares. Upon consultation, although the growth was evidently of a malignant character, it was determined, at the urgent request of the patient and her friends, after being fully warned of the danger of the operation, and of the probability of the return of the disease, to remove the tumour and affected bones. Chloroform was given during the first steps of the operation, the two incisor teeth of the left side were extracted, and the usual triangular flap was formed with a short transverse extension of the external incision along the zygoma. In dissecting the flap up, great care was necessary, as the cellular tissue immediately beneath had become connected with the tumour, and the skin also, to a small extent, was adherent to it. The zygoma, the alveolar, palate, and nasal processes of the superior maxillary bone and the ascending process of

* Lancet, March 9, 1850.

the malar bone were now successfully cut through with the bone forceps, the other slight bony connections were easily broken up, and the diseased growth was removed. A small portion of the tumour, however, connected with the external angular process of the frontal bone was now cut off with the portion of bone to which it adhered. There was very little hæmorrhage, two or three vessels were tied, the edges of the wound were brought together by sutures, and the flap, which at the close of the operation was observed to be cold and of a livid hue, soon recovered its natural appearance.

On examining the parts which had been removed, a cavity of much greater size than natural was found in the situation of the antrum; its walls were throughout perfectly soft, and covered with a thick fungating growth; the various osseous boundaries of the antrum had for the greater part disappeared, having been either absorbed or converted into the abnormal tissue; and towards the orbit the morbid growth presented itself in the shape of several roundish masses united to each other, and projecting far beyond the level of the bone. In the canine fossa there was a similar growth, the malar bone still remained, but it was covered with and imbedded in the disease, which appeared to have crept along its periosteum on both sides; in the nasal cavity the mucous membrane was studded with small tumours; the palate presented several small points of bone remaining, which were contained in a mass of disease, but the shape of this part towards the mouth was altogether unaltered, and when pressed upon presented a firm resistance. An attentive examination of the morbid tissue showed that it was throughout of the encephaloid form, being in some parts soft and pulpy, and in others hard and elastic, somewhat resembling scirrhus. The use of the chloroform was not continued after the first incisions were made, as fears were entertained of the patient being suffocated by blood running down into the trachea.*

7. *The Principles of reduction in dislocation, &c.*†—Before proceeding to the description of dislocations in detail, Mr. Skey briefly comments on the subject of the principles which ought to guide our management; and proceeds to combat certain opinions and a generally adopted practice, which, in his judgment, are erroneous. His valuable observations are subjoined.

Influence of the muscles.—The affected bone is dislocated from its socket, generally in consequence of the violence of the blow it has received. It remains dislocated in consequence of the tensions of the muscles inserted into it, which become the subject of a passive contraction. This state continues so long as the limb continues undisturbed by the efforts of the surgeon to reduce it. But no sooner is the attempt made to elongate the limb, than the same muscles, one and all, start into sudden and positive contraction, as though for the express purpose of preventing the descent of the bone. In this unequal struggle they contend against the yet more powerful agents of traction by pullies, yielding their ground inch by inch, till the bone is restored to its normal position, when they retire from the contest, and instantly resume their former state of repose. In the case of the dislocation of a large bone, the power exerted by the muscles, in order to retain it in its false position, is enormous, as may be readily inferred from the force employed to counteract them; and this force is continuous throughout the whole period of the attempt at reduction, their contractile power becoming probably greater as the bone descends, and approaches the range of the ordinary contractility of its muscles.

Interference of the surgeon during reduction useless.—It does not appear very reasonable to suppose that a force like that to reduce a bone fixed by

* Lancet, Jan. 19, 1850.

† Skey's Operative Surgery, cap. iii, p. 60.

some of the largest muscles in the body, and often reaching that of several hundred-weight, could be diverted from its straight line to any useful purpose by the mechanical pressure of the hand, or even rotated by the unassisted efforts of one, or even two persons. Yet surgeons often take credit to themselves by reducing the bone by such manœuvres; such as rotating the femur inwards, after extension of the limb, for the purpose of raising the head of the bone into its socket, or raising the head of the humerus, in like manner, in dislocation of that bone downwards, into the axilla. An experience of twenty-five years, of every variety of dislocation, in St. Bartholomew's Hospital and elsewhere, long since taught me the futility of such attempts, and I am strongly of opinion that the apparent success which occasionally *though rarely attends* them, is due to accident alone. If the head of the femur, for example, be drawn down insufficiently, so that it rests on the outer margin of the brim of the acetabulum, it cannot be pushed over this margin into the socket by any act of manipulation, for additional extension is still required; whereas, if it has reached the requisite point, it will be instantly reduced by its own muscles. I have repeatedly inquired of the most experienced surgeons in the metropolis, how frequently they had witnessed the successful result of such attempt to replace the bone in its position. The answer has invariably been such as to justify me in adopting the principle I wish to urge on the attention of the reader, viz., that the immediate act of reduction is effected by the muscles, and by them alone. Remove the obstacle, bring the bone downwards, and the socket will receive it with avidity, by the agency of its own muscles, which it would appear are more powerful in a good than in a bad cause, and which now contend more successfully against the extending force employed, even in its highest degree of traction. Such is the result of my observation. I have rarely witnessed an act of successful interference by a bystander, whereas I can bear my testimony to upwards of an hundred ingenious, though futile, attempts to enhance the value of simple extension by side towels, lateral girds, violent twistings of the limb, and sudden cessation of the extending force; formerly, most agonizing aggravations of the sufferings of the patient, and all to no purpose, because the extension is either misapplied or is insufficient to such necessary elongation as can alone overcome the obstacle to the reduction.

Difficulty of reduction, from a tendon interposed.—The occasional occurrence of difficulty from the obstruction of a muscle or tendon, which has become twisted from its position, and has prevented the return of the head of the dislocated bone into its socket, is an exception, and an unfrequent one, to the above rule; and it cannot be denied that success does not invariably attend the best made efforts at reduction, and that the obscure and mysterious cause of this difficulty remains for ever unsolved, however perfect may be our knowledge of the anatomy of the parts involved in the dislocation.

Line of traction.—In the endeavour to reduce a dislocation, the line of traction should hold reference, less to that of the socket or surface from which the bone has been displaced, than to the more important purpose of easing it from the surface on which it has lodged. For example, the rim of the glenoid cavity in dislocation of the humerus, presents an obstacle to the extension of the bone in the immediate line of that cavity; but if the bone be drawn off it, by extension made in any oblique direction, the instant this ridge is passed, the head will rush back into its natural cavity. So, also, in dislocations of the femur on the dorsum ilii, we do not attempt to draw the bone in a direct line with the acetabulum, but we carry it below, round its back and elevated margin, and no sooner does it reach the lower part of the rim, which is much less prominent than the upper and back part, than the

muscles immediately restore it to its socket. The same rule holds in dislocation of the ulna and radius backwards at the elbow joint. I believe the exact line of extension to be much more readily determined, and, in truth, a less important subject of consideration than it is generally deemed. I believe that if we bring the bone sufficiently downwards, and place it in the *neighbourhood* of the articulation, the muscles will replace it with as much ease as that which originally dislocated it.

Muscles the immediate agents of reduction.—The bone appears as if sucked violently into the socket, even at the instant of it sustaining the greatest force of extension. Then is it that the muscles, acting with one accord, set at nought the contending power, and complete the work of reduction, in defiance of all the agents employed at the moment to prevent it. I consider that the muscles are the immediate agents of reduction, and not the surgeon, whose entire duty consists in placing the bone in a position to give them the opportunity of displaying this harmony of action, and of exercising a power even beyond that of the mechanical agent of extension. It is this power that succeeds in forcibly drawing backwards the head of the femur into its cavity, when it has fairly reached the rim of the acetabulum, notwithstanding the force employed at that instant in extending it.

In the examples of the larger dislocations, I place no reliance on any of the above-mentioned efforts of manipulation, but depend almost entirely on the act of simple extension, in the fullest confidence of the disposition of the joint to right itself, if the obstacles be removed.

Early attempt at reduction desirable.—It is desirable that an attempt to reduce a dislocated bone be made as early as possible. The difficulty increases daily, by reason of the increasing inorganic contraction of the muscles engaged; and after the expiration of some weeks, by the new fibrous adhesions which the dislocated bone acquires. But this difficulty should not be overcharged. It does appear probable, that an attempt at reduction immediately consequent on a dislocation, takes the muscles by surprise, and the object is obtained with a facility that does not reward with equal success the same means employed even a few hours afterwards. But supposing this rare opportunity lost, I am doubtful whether the difficulty increases in any positive degree, day by day, for some time. I do not deny that the passive contraction of the muscles demands an increasing force of extension, by the mechanical agents employed, but I consider the progress of this difficulty to be so slow as not to present any serious obstacle to the elongation of the limb by pullies, or by similar agents, even though many days, or even weeks, have expired since the occurrence of the accident.

Difficulty of establishing rules as to time, &c. in old dislocations.—It is impossible to lay down any positive rule with regard to the time beyond which an effort at reduction should not be made, unless we carry the question at once into a period of nine months, or a year or more; because, although our success may be improbable, the attempt is worth making, provided it be carried into effect with discretion, and it is very rarely that injury is sustained by the attempt, however powerful or long-continued; indeed, it is often followed by increased freedom of movement afterward. Sir A. Cooper objects to the efforts being made to reduce dislocations of long standing, and he has endeavoured to define the period at which the attempt may be made. He gives two months to the humerus, and three months to the femur. It would appear that the increase of difficulty in the attempt to reduce a bone dislocated three or four months arises rather from the increase of strength and firmness of the fibrous adhesions formed around the end of the dislocated bone, than from the condition of the muscles, which have probably attained their fullest degree of

inorganic contraction, and have become partly absorbed at the expiration of two months.

Cavity filled with fibrous substance.—There is, indeed, another obstacle to which I think an unreal importance is attached, viz. that of the residue of the joint becoming filled with a new growth. Nor do I understand how any soft, fibrous substance would prevent the return of the dislocated bone. Its presence might create pain, or might increase the liability to new displacement, but nothing more; and I hardly know how it can be employed as an argument against the attempt being made, for, if successful, why should it not be absorbed? Thus, Dupuytren speaks of thickening of the cartilages, as preventing complete apposition of the bones when reduced. Of these three obstacles, the second presents the greatest difficulty—that of fibrous growths connecting the bone to the structures around, but especially to the shaft of the bone on which it rests. But these new growths are far less unyielding in their structure than are the ligaments torn asunder at the time of the original accident, and when we consider the sudden nature of the accident, and the gradual influence of the extending force employed to reduce the dislocation, we can readily conceive that the former was considerably less in degree than the power of extension usually employed in reduction.

Necessity of powerful extension to break down adhesions.—To effect the complete laceration of these adhesions, the limb should be subjected, under the influence of chloroform, to powerful extension, and should be forcibly rotated in all directions. The pullies may be employed as if for the purpose of reduction, and with considerable force. This effort should be followed by renewed rotation, under which the adhesions will be felt, and almost heard to crack asunder. If the patient be exhausted, the attempt at reduction may be postponed till the following day.

Gradual extension requisite in old cases.—The second obstacle, that of the contraction of the muscles, should be met by patient persistence in extension. The extending power should be employed in the most gradual manner, occupying from half an hour to an hour, or longer; the length of time to be determined by the power of endurance of the patient, and to whom chloroform may be repeatedly administered during the progress of the attempt. Should the attempt fail, it may be repeated at the expiration of a week, for a second time; and supposing these two efforts to have been conducted with skill and judgment, and prove equally unsuccessful, any further experiment will probably prove futile. By such means I have succeeded in reducing a dislocation of the humerus, after three months and some days escape from the glenoid cavity.

Attempts to reduce old cases unattended by danger.—The immense experience of Sir Astley Cooper has failed to furnish a single case of serious injury consequent on the attempt to reduce any form of dislocation. He speaks, indeed, of contusions of the muscles, and laceration of the skin, and insensibility of the arm; but no instance of serious injury is recorded to awaken fear or distrust in the mind of the operator, or to create an alarm lest the effort should prove seriously detrimental to his patient. In the operation for reducing recent dislocations of the extremities, much of the success depends on the power of endurance of the patient, and this in its degree on the skilful adaptation of the agents of extension and counter-extension. Everything, therefore depends on the good or ill management of the surgeon. The expression of suffering, which often determines the duration of the attempt, is more frequently directed against the application of the extending force than against that region of the limb on which this force is intended to operate. Patients do not complain of the change in the position of the dislocated bone. Their

outcries are especially referable to the opposite end of the bone, or the limb. If great care be bestowed on the application of these agents of extension, much more can be effected, and success will more generally attend the first attempts at reduction.

Good management essential to success.—In the case of large dislocations, such as the humerus, femur, and tibia, everything depends on good management. A well-planned attempt at reduction does not often fail. The anatomical knowledge of the surgeon relative to the joint should be perfect; the apparatus complete; the immediate agents of extension and counter-extension, deliberately and well applied; the cord sufficiently strong to be beyond suspicion; the staples firm; the material for protecting the skin against injury, whether consisting of wash-leather, caoutchouc, bandage, or linen, ample in quantity.

Counter-extension.—The counter-extension should be first applied, which, whether over the chest or pelvis, should be so adjusted as not to distort the person of the patient during the extension, or throw it into any irksome position; for it must be recollected that when extension is made, the line between the two extreme points of attachment to the cords, which is composed partly of cord, partly of pullies, and partly of the person of the patient, will be perfectly straight. The office of the agents of counter-extension is, generally speaking, that of fixing the bone from which we intend to draw, but not invariably so.

Extension. The agents of extension should not be applied on the dislocated bone.—That for the humerus should be placed round the wrist; that for the femur around the ankle, or at the extremity of each limb. In the case of the arm, from the large size of the biceps muscle, and the uncertain resistance afforded by the elbow-joint, the leather, or whatever other material be employed, is liable to slip over the joint, and negative the whole proceeding; and binding the elbow to a right angle occasions pain, by throwing the extending force on the forearm. This grievous error would justly attach discredit to the operator. But there remains a yet stronger reason against the application of the extending force to the upper arm; viz. that by so doing we are in reality drawing the bone up by the pectoralis major and latissimus dorsi, which, through the medium of the triceps extensor muscle, we are drawing down the identical bone from which we are making the most strenuous efforts to dislodge the head of the humerus. The same arguments as strictly apply to the other example above adverted to. If the agent of extension, in a case of dislocation of the femur, be applied above the knee, it is liable to slip over the knee-joint; and this same objection holds with the muscles; for we are in this case drawing violently on the rectus muscle which is attached to the pelvis above. In the one case we are acting on the scapula, and in the other on the pelvis, both of which bones should remain passive as regards extension.

Chloroform relieves pain, and relaxes the muscles.—The patient should be reduced to a state of unconsciousness, by the administration of chloroform, which supersedes the old and happily nearly obsolete practice of large venesections, or of prostration from tartar-emetic. The operation is otherwise a very painful one, and fully justifies, if any operation can, the resort to this invaluable agent employed under these circumstances, not merely for the purpose of subduing pain, but for that even more important end of averting the opposition of the muscles engaged, and, as it were, lulling them into a condition of temporary sleep. It is difficult to calculate what proportion of the extending force is rendered unnecessary by its aid.

The extension should be made slowly, steadily, and uninterruptedly. The

necessity for increased tension should be telegraphed by a nod to the assistant in charge of the pullies. The surgeon-in-chief should stand at the head of the dislocated bone, one or both hands being applied to the limb continuously, throughout the entire operation, lest the extension be continued after the bone has slipped silently into the socket. Every addition to the tension of the cords should be followed by the cessation of two or three minutes, in order to give the muscles time to relax spontaneously, during which the surgeon will examine the limb from time to time, in order to determine whether the bone is descending in the requisite line. Some force of pressure is required for this purpose, owing to the tension of the skin; but still it should be done without giving pain or unnecessarily bruising the surface. In this manner the operation may be continued for a period of from half to three quarters of an hour or longer, to be determined either by the reduction of the bone or by the suffering of the patient, supposing the effect of the chloroform to have ceased. The older the dislocation, the more gradual should be the effort, and the longer applied; and I have often felt inclined, in obstinate or protracted cases, to continue a bearable degree of extension for some hour or two, or even longer, in the hope that the muscles would yield to the unremitting and exhausting effect of continued tension upon them.

The return of the bone into its cavity should be carefully noted by the surgeon. It is characterised by a slight shock given to the limb, which the patient himself is often the first person to note.

It is occasionally in the larger joints attended by the palpable and even the audible presence of a dull sound; but it may almost invariably be felt by any attendant whose hand shall happen, at the moment, to be in contact with the limb.

All the appliances should now be removed, and the patient placed carefully in bed, in such a position as will ensure to the affected joint the most perfect ease. The reparatory agents restore the limb to utility with wonderful celerity, when we consider the extent of the injury that occasionally appears, from the nature of the case, inevitable.

8. *Osteocephaloma.** — Mr. Miller thus describes this disease: — "This denotes the medullary formation as it occurs in bone; a most malignant and intractable tumour, and unfortunately not of rare occurrence. When osteosarcoma degenerates, it is to assume the character of this. Then, instead of fleshy interstitial substance, of a simple kind, there is medullary deposit, commencing usually at a central part. The osseous skeleton for a time remains, but sooner or later it disappears, and its place is occupied by a soft brain-like mass. The exterior osseous shell in like manner is involved and changed; ulceration follows; the medullary substance, then exposed and unconfined, quickly establishes the condition of fungus; and an untoward progress is made, similar to what has been already described in the soft tissues (p. 329); more frequently the tumour is primary. Medullary from the first, making no change, except from the occult to the open state, and perhaps to assume the condition of fungus hæmatodes; rapid, painful, involving all textures, pushing none aside, and attended by a most marked and wasting cachexy. Sometimes, the brain-like mass originates in the soft textures exterior to bone, and involves the latter secondarily; and in some cases portions of fat have been found coexistent with the medullary matter. When the tumour forms in the shaft of a long bone, fracture is still more likely to occur than in osteosarcoma, greatly aggravating the untoward progress of the disease.

"*Treatment* is by early and thorough removal. Amputation of the limb is

* Miller's 'Principles of Surgery,' p. 483.

usually preferable to extirpation of the part, and it is a safe general rule, that when practicable, the bone in which the tumour has been produced should not be sawn through at any part, but disarticulated. If an opportunity for early interference be not afforded, the knife should be withheld, and palliatives alone employed.

" *Diagnosis.*—Practically it is of the utmost importance that we should be able to distinguish between osteosarcoma and ostcocephaloma. Each is not of unfrequent occurrence; and each requires distinct rules of treatment. The most common sites are the maxillary bones, lower and upper; the next, the long bones of the extremities, especially the heads of the tibia and fibula, and the corresponding end of the femur. But the flat bones, as the scapula, cranium, and pelvis, are by no means exempt. Nay, in some cases, the whole skeleton seems more or less affected with the malignant diathesis. The prominent points of difference are the following, sufficiently distinct to protect the experienced and careful. In the degenerating tumours, however, it is not easy often to determine whether the simple or malignant structure yet predominates. 1. Osteosarcoma is seldom found prior to adult age; osteocephaloma may occur at any period, and is as frequent in the adolescent as in the adult. 2. Osteosarcoma is usually attributable, in its origin, to external injury. Osteocephaloma is more frequently of spontaneous growth. 3. Osteosarcoma is slow and gradual, and more or less uniform in its growth. Osteocephaloma is much more rapid, and tends to enlarge unequally, growing chiefly at those points where there is least mechanical resistance. 4. Osteosarcoma usually is almost and altogether painless, unless when some nervous trunk or plexus is compressed; osteocephaloma, from the first, is attended with severe and lancinating pain. 5. Osteosarcoma is firm, and yields but little to the touch, even rude pressure is scarcely painful; an obscure crepitus is often felt. Osteocephaloma is soft and elastic from an early period, the shell of bone, and all other remains of the original texture, soon becoming merged in the medullary formation. It is elastic, and affords no crepitus, when an original tumour, and pain is aggravated by even slight compression. 6. Ostcosarcoma entails but little disorder of the general health. Osteocephaloma is attended with marked cachexy, even from the beginning. 7. A casual abrasion of the skin, or mucous membrane, investing an osteosarcoma, shows a simple character, and may be brought to heal under ordinary treatment. A similar breach in the surface of an osteocephaloma does not heal, but widens more and more, and becomes the site of fungous protrusion. 8. Osteosarcoma does not invade the neighbouring tissues, but pushes them aside by its expansion, and abides within the bone in which it was first developed. In the upper jaw, for example, it remains limited to the expanded confines of the antrum. And, at those parts where the bony and even membranous parietes are deficient, there is no ulceration followed by fungous protrusion, but only a moderate increase of growth, in a lobulated form, with or without a rawness of the surface. Ostcocephaloma, on the other hand, pushes no texture much aside, but early involves all; the antrum is soon passed beyond, and the base of the cranium is affected even before much appearance has been made externally. Wherever deficiency of the investing texture occurs, ulceration and fungous growth are sure to follow. 9. Osteosarcoma long continues in the occult condition. Breach of the surface, when it does occur, does not extend rapidly, and evinces no malignity of character. The discharge is purulent or puriform, not profuse. There is no tendency to hæmorrhage, unless by accidental injury, and then it is slight, and easily restrained by pressure. Ostcocephaloma soon passes from the occult to the open state. The ulcer spreads, and is obviously the seat of malignant action.

Discharge is profuse, fetid, and bloody. Hæmorrhage is not unlikely; of spontaneous origin, and little amenable to control. 10. Osteosarcoma does not spread, either by contiguity in the tissues or remotely by the lymphatics. Osteocephaloma does both; at an early period the lymphatics are manifestly and hopelessly involved.

"Such are the striking differences between the two tumours. The destinction is equally great in the treatment applicable to each. If the tumour be an osteocephaloma, operation is warrantable only at a very early period, when there is a certainty that the whole of the affected parts, and something more, can be wholly removed, and when there is good reason to hope that the constitution is not much and irremediably involved. An osteosarcoma, on the other hand, admits of operation till a late period. Its extirpation can be fearlessly attempted, with a good hope of success, even after the tumour has attained an enormous bulk; and experience has fully shown, that though the operation may be bloody and severe, yet it seldom terminates but in a fortunate issue. In regard to prognosis also, the tumours widely differ. After removal of an osteocephaloma, even under favorable circumstances, we can never be certain of immunity from return. When a genuine osteosarcoma, on the contrary, has been taken away, the mind may be at ease, for return is very improbable, even when the operation has been performed at an advanced age of both tumour and patient. Osteocarcinoma is comparatively rare. When it does occur, it is usually as a secondary symptom of malignant cachexy, the primary indication of which has been the formation of carcinoma in the soft parts, as in the mamma. The formation of such secondary growth, as formerly observed, may be excited by the occurrence, or the order of events may be reversed, the tumour gradually expanding and attenuating the bone by its growth from within; and the bone thus changed snapping across under some slight exertion. Under such circumstances, all hope of cure is vain, even by amputation. Osteocancer, a malignant ulceration of bone, is not uncommon; usually of secondary origin also, the invasion having come from the soft parts. A malignant ulcer of the scalp, for example, not unfrequently involves the subjacent skull in a hopeless loss of substance. A similar occurrence in either of the extremities would warrant amputation, unless lymphatic tumour, or other indication of an irrevocably involved system should contraindicate all active interference."

9. *Osteomelanosis.*—This disease, too, is usually secondary, the melanotic matter infiltrated, or in different patches. Sometimes separate and distinct, more frequently, as in soft parts, associated with medullary formation. There is no remedy but by amputation, and the cases are few in which that operation will be deemed expedient.

10. *Vascular tumours of bone.*—Bone may be variously affected by a morbid condition of the blood and blood-vessels. 1. Osteoaneurism. A kind of false aneurism may form in the cancellous texture, an artery giving way, and blood accumulating, so as to distend the laminated portion into the form of a tumour, of greater or less magnitude. This may be the result of external injury, by rupture of the arterial coats, or it may form spontaneously, by arterial ulceration. It has occurred in the head of the tibia, the condyles of the femur, the scapula, and the clavicle. Cure is to be attempted by tying the principal arterial trunk leading to the part; at the same time, applying uniform sustained compression of the tumour. Should this fail, or be deemed either impracticable or unadvisable, removal of the affected bone, or portion of bone, by amputation, will be expedient, if the part be so situated as to admit of the operation. For, were the disease left to itself, the open condi-

tion would sooner or later be attained, and death by hæmorrhage ensue. A remarkable example of this disease occurred to Mr. Liston, and is related in his 'Elements of Surgery' (p. 170). 2. Erectile tissue may become developed in the cancellous texture, expanding the laminated portion of the bone, so as to form, as it were, its outer case. The symptoms are necessarily obscure. Fortunately, the occurrence is rare; deligation is plainly inapplicable; amputation must be had recourse to. 3. Either of the preceding varieties may be conjoined with medullary deposit. In such circumstances, early and free removal by the knife is plainly and urgently indicated, but with an unfavorable prognosis as to the probability of return.

11. *Pulsating tumours of the bone.*—Certain enlargements of bone are observed to be endowed with pulsation, this varying from a mere thrill to the strong impulse of an aneurism. The cause is various. It may be from the inherent structure of the tumour, as in erectile tumour of bone, and osteoaneurism; or the nutrient arteries of the bone may be preternaturally enlarged. Or it may be in consequence of an osteocephaloma overlaying a large artery, or being permeated by one, and so receiving its impulse; thus simulating the aneurismal state, as tumours of the soft parts do in like circumstances. Sometimes, nay often, bruit accompanies pulsation, and in consequence, accurate diagnosis may be rendered very difficult.

12. *Entozoa in bone.*—Hydatids have not unfrequently formed in the cancellous tissue of bone. Under their accumulation the walls of the bone expand, so as to form a tumour of greater or less size, and of varied form; and then attenuation and deficiency of the parietes taking place, the hydatids may escape into the superimposed soft textures, causing suppuration there, and subsequent discharge of themselves along with the purulent secretion. In a flat bone, such as the cranium, removal of the disease may thus be obtained by the aid of surgical interference. In the long bones the occurrence is likely to lead to fractures under very inauspicious circumstances. Treatment accordingly will vary according to the extent and site of the disease. The bone may be exposed by incision, the hydatids and altered osseous tissue may be scooped and gouged away, and the parts may afterwards granulate and heal kindly; or it may be necessary at once to proceed to amputation.

§ III. *Injuries and Diseases of the Abdomen.*

13. *On the operation for puncture of the Intestine in Constipation, and for Imperforate Anus in Infants.*—Cases of constipation, that resist the influence of ordinary treatment by means of purgatives, enemata, &c., are often dependent on mechanical obstruction in some part of the alimentary tube.

Such obstruction may be dependent on various causes. First, on strangulated hernia; secondly, on inter-susception of the intestine; thirdly, on the occurrence of an abnormal twist of the bowel; fourthly, on the formation of a bridle of lymph, the pressure of which may insulate the contents of a portion of intestine; fifthly, on the external pressure of malignant tumours; and sixthly, on strictures. Of such causes the first and last two involve disease of both the large and small intestine; the three remaining are limited to the small intestine only. When the disease is seated on the small intestine, whether jejunum or ilium, the symptoms are more acute and more rapid in their consummation, consequent on their higher degree of vitality, than that of the large intestine. Of the causes above alluded to, hernia and stricture are by far the most general, and on such a case presenting itself for treat-

ment, no sooner does the suspicion of its nature occur to the mind of the medical attendant, than it becomes his duty to examine the regions in which hernia, whether inguinal, femoral, or umbilical, ordinarily occurs. If the examination, when fully made, prove insufficient, the inquiry should be continued in reference to other causes ; and of these, stricture is by far the most frequent.

The evidence pointing to such form of obstruction is generally obtained,—first, from the absence of primary inflammation of either the intestine or peritonæum, of which constipation is a symptom; secondly, from the gradual approach of the constipation, which may have existed in a greater or less degree for many months; thirdly, from the absence of considerable pain on pressure; and fourthly, from the consciousness, on the part of the patient, of her inability to act on the lower part of the rectum by the agency of the abdominal muscles. I have employed the feminine pronoun, because it has happened to me to have observed and attended such cases with far more frequency in the female than in the male sex. As the symptoms advance, the stomach rejects food; the intestines become extended with flatus, and the bowels writhe in a painful but unsuccessful effort to force the passage. These efforts become less frequent and less painful, till the patient dies exhausted. Such is the general history of cases of mechanical obstruction to the alimentary canal from stricture, proving fatal to life.

Stricture of the bowel is more frequently seated in the large than in the small intestine, and occupies the sigmoid flexure of the colon more commonly than any other part of the canal. The presence of the disease may be occasionally felt by pressure on the parietes over the left iliac region. But evidence of its nature must be obtained from every productive source. If the patient be advancing in life; if constipation has been, perhaps for months, an attendant evil, and the obstruction gradual, yielding only to the daily influence of powerful aperients or enemata; if there exist no evidence of recent inflammation, no local pain, we may generally infer correctly, that the large intestine is the seat of stricture within the gut, or of pressure without, of schirrhous character. This is not the product of recent disease, of contraction of the canal from common thickening, the result of inflammation, but from deposition of cancerous matter in the submucous tissue of the intestine, involving the entire structure of the bowel; and it is often in such a case, that the opinion of the surgeon may be required to determine on the feasibility of opening the intestine above the stricture, and to form an artificial anus. The desire to preserve a human life is, undoubtedly, a very powerful motive in favour of an operation, and if life could be preserved by such means, it is the duty of the surgeon to undertake it at any cost to himself; but we must distinguish between the consequences of an operation that will *prolong*, and an operation that will *preserve* life; in other words, that will affect an absolute recovery. The intestine cannot be punctured without some danger to the life of the patient from the consequences of the operation itself. The mere act of puncturing the bowel, perhaps, entails no positive danger; but it must be recollected, that before resorting to this *anceps remedium*, the patient is necessarily reduced in strength by the long subversion of the abdominal functions, by the loss of food, and by the agency of remedies employed during many days for the purpose of forcing a passage. If the operation of puncture be proposed with a view to preserve life, it must be recollected, that in opening the intestine we leave behind a malignant disease that will increase and probably ere long destroy the life that has been temporarily extended. To leave behind such a disease on the back of a large and serious operation, is not very consistent with scientific surgery, and certainly

cannot be recommended, especially when we consider the discouragement given to the cause of operative surgery by the occurrence of a fatal result, and the loss of confidence entailed on those who are shaken in resolution from submitting to an operation which may present a far better prospect of success. If the puncture be proposed with a view to take the chance of prolonging life for an uncertain term, which, under circumstances, may be of especial value; if the case be clearly and honestly stated to the patient or the friends as one likely, in all human probability, to become fatal within a given time, say one or two weeks, or a month or two months, for the duration is quite uncertain, then, and then alone, a puncture is warrantable.

It is important that the surgeon satisfy himself of the nature of the disease, if practicable; but this knowledge can only be obtained, with any amount of certainty, when the disease is situated within reach of either eye or hand. A great effort should be made to effect this object, and when seated in the lower part of the colon, in the sigmoid flexure, or in the rectum, it may be either exposed to view, or the finger may be brought into contact with it. For this purpose, the sphincter must be dilated to its fullest extent, and the hand passed into the rectum. If this object, so important, require it, the sphincter may be divided backwards to the coccyx without pain or hæmorrhage. If dependent on scirrhous contraction of the colon or rectum, a cone-like projection of the membrane will be immediately felt, pointing downwards, with a depression in the centre. If the disease assume this character, we may at once abandon the hope of benefit from an operation undertaken for any other purpose than that which contemplates a possible and temporary extension of life. Such an attempt may become warrantable for various purposes, such as the distant absence of a relative or friend, in our interview with whom something more than affectionate interest is involved; for how much of the future happiness of a surviving individual may not depend upon the confidential communication made on a bed of death? or again, the distribution of property may be involved to a large extent, which may be diverted from its legitimate channel, or may be acquired, should the patient survive to a future day, beyond which an operation might in all reasonable probability carry him. If life, under such circumstances, is desired by the patient and his surrounding family or friends, I do not think a surgeon should hesitate in refusing the benefit of his co-operation, whether the motive be founded on moral feeling and affection, as in the case of absent relatives, or on the question of property. With respect to the operation itself, the first question relates to its locality; and here it would appear desirable that the region should be selected in which the intestine is most easily punctured; other considerations, however, occur to interrupt a hasty decision on this head. The intestine may be exposed in the left lumbar region, as in the operation for tying the common iliac artery; and looking to the future comfort of the patient, and the nature and office of the opening about to be made, this region has advantages possessed by no other attainable one. But it must be recollected that the colon, in this situation, lies at a distance from the surface, a distance of some two inches at least, and that a puncture into it could not be made in safety without careful prolonged dissection; and that a tube so introduced must be necessarily retained along a deep and suppurating wound, whereas an opening in front is made through thin parietes and into a distended bowel, the outlines of which are apparent to the eye. I think we ought to lay aside all consideration of future comfort for the sake of the important question of temporary safety. If the disease be uncertain in its nature, and present a reasonable prospect of ultimate recovery, that situation should be preferred which offers less objection on the ground of

comfort and cleanliness; but in the example above given, every other consideration should be sacrificed to safety, and I conceive that there can be no doubt raised as to which locality the preference should be given. It is true that the front surface of the body is more highly organised, and that operations on the back are less serious in their consequences, but this is not a question involving parietes without but organs within; and if the intestine has to be opened with a view to form an artificial anus, I conceive that the lower the puncture be made the better, not merely with regard to the length of the remaining tube, but with that of the vitality of the intestine itself.

As regards the mode of puncture, if made through the anterior wall, that point should be selected which indicates the greatest degree of prominence of the bowel, which in such cases is always both dilated and thickened by its long expulsive effort. The ear and the stethoscope should be brought into requisition, and the outline of the bowel well ascertained by percussion. The integuments may be divided to the length of an inch or more, and the abdominal muscles cut asunder to the extent of the outer wound. A large curved chain trocar in a canula, with the point directed upwards along the tube, should be introduced quickly into the bowel, and the canula retained during the escape of the contents, and indeed so long as local disturbance does not ensue. The canula should be of such length as to prevent its escape from the bowel as the contents flow off, and the gut contracts in diameter.

In the operation on the intestine in the lumbar region, the external incision should be made from the point of the last rib downwards to and along the christi ilii, the muscles should be divided to a less extent, and the bowel punctured with a long straight trocar, the canula of which should be retained on the same terms as in the operation in front. The necessarily greater extent, both on the surface and in depth of this operation, is the chief element among the objections to its performance.

14. *On Imperforate Anus.*—Associated somewhat at least in principle with the above subject, is that of obstruction to the alimentary tube in newly-born children, caused by imperforation of the anus, examples of which are not infrequent in extensive obstetric practice. The want of continuity of the canal is usually unobserved for a day or more after the birth of the child, when the absence of discharge of the meconium attracts the attention of the nurse, and the defect is observed. Under some circumstances, however, the absence of the anal orifice may be detected at birth, viz., when the natural discoloration of that surface is wanting. Under all other circumstances, the defect is unknown, and of course unsuspected, until the repeated but futile efforts of the child to force the contents of the intestine expose the abnormal condition of the canal. Imperforate anus, as it is termed, presents itself in three degrees of defective organisation. In the first we find a simple closure of the external orifice, by a band or membrane passing across and occluding it. In the second the tube of the intestine appears closed to the extent of the sphincter muscle. When I say closed, I mean that the gut is wanting as regards the mucous coat, and the muscular coat has a doubtful connection with the sphincter muscle. In both of the above examples, the external sign of the orifice, so far as relates to its form and colour, is present; and without a closer than ordinary inspection, the condition of the part would pass unnoticed either by the nurse or by the surgeon. In the third example we find not imperforation but deficiency, the entire absence of the intestine, from half an inch to two inches in length. Under these circumstances, the external signs of an orifice, and even the sphincter muscle may be totally wanting. Indeed it is often combined with imperfect development of the corpus spongiosum. In considering the duty of the surgeon, we cannot hesitate in our

attempt to establish an orifice by operation ; and convinced that the death of the child is the certain issue of failure, we must leave no effort untried that prudence dictates to effect it. The child should be laid on a pillow placed on a table, and brought to the light—the whole abdomen should be bared, and the perinæum and anal region carefully examined. If the brown external mark of the anus be well defined, we have reason to hope that the defect may not be great, and *vice versâ*. The point of the finger should be placed on this surface, and the other hand laid on the abdomen for the purpose of compression of that cavity. The application of the hand will often excite the abdominal muscles to contract, and, if not, its pressure will tend to force the contents of the intestine down into the rectum. If the tube of the intestine be continuous up to the orifice, or even to the sphincter, the impulse will be perceived by the finger below—whether it is or not, an opening should be made. If it be perceived, and it becomes obvious that a simple band or thicker membrane forms the only obstruction, it should be divided with a small scalpel. If it be not felt by the finger, the external parts should be drawn tightly by an assistant, and the orifice divided to the depth of the sphincter, or about one third of an inch, taking the greatest care to follow the exact line that the intestine usually occupies. The finger should then be oiled and passed into the opening thus made, and the hand pressed on the abdomen as before. A trocar is now to be employed, in size about intermediate between those employed for ascites and hydrocele, and the canula being pressed on to the bottom of the wound, the trocar is to be carried beyond it, the depth of the puncture being regulated with great nicety by the thumb-nail pressed on the shaft of the instrument, first to the extent of half an inch, then to an inch, and even to an inch and a half. Should a puncture of this depth fail to obtain meconium, the case may be deemed hopeless, so far as regards the prospect of establishing the continuity of the tube. To proceed further in such a case would rather depend on the value attached to the life of the child by its parents, and the surgeon may, without being chargeable with indifference or neglect of duty, decline further interference, because the issue of the case is not determined, nor life necessarily preserved by a successful puncture under the circumstances. The difficulty is yet before us, that of retaining the orifice made by the trocar. If the value of the life of the child be specifically great, arising from its future relation to property, &c., another effort may yet be made, and the trocar again resorted to and introduced in more than one direction. Should this effort fail, nothing remains but to open the colon through the abdominal parietes, and I can hardly conceive the circumstances which would justify such a proceeding. Should meconium follow a successful puncture by the trocar, through the sphincter, a large urethra bougie should follow its evacuation, and especially so, if the canula employed be small. The retention of the bougie, or a silver spring, which is preferable, will demand all the ingenuity of the operator, arising from the great difficulty of retaining the orifice, and the tube beyond it, patent. I have succeeded in obtaining meconium after a puncture of more than an inch in depth on two occasions, but both children died from this cause. In neither case was I responsible for the more difficult portion of the task, viz., the after treatment. When the intestine is imperforate to the extent of a third or half an inch, ultimate recovery may be hoped for as probable; beyond this extent it is very questionable.*

* Skey, op. cit., pp. 581—588.

§ IV. *Injuries and Diseases of the Urinary System.*

15. *Operation of Perinæal Section for Stricture of the Urethra.**—The attention of the profession has, during the last year, been directed to the consideration of the cure of stricture by perinæal section, in consequence of a paper published by Mr. Syme, of Edinburgh, entitled, 'A New Mode of Treating Certain Cases of Stricture of the Urethra,' which had led to much controversy, and difference of opinion between the English surgeons and Mr. Syme. We subjoin an abstract from the following pamphlet by Mr. Wade, as not only affording to our readers the principles of practice laid down by the professor, but also as containing the best reply we have read to the plan advocated, and displaying the real as well as the apparent value it possesses.

Mr. Wade commences by remarking, that in Professor Syme's late *brochure* on 'Stricture of the Urethra,' amongst other observations depreciating the ordinary methods of treatment in that disease, there are some remarks on the use of caustic, which, emanating from such a source, appear to him to be so likely to do harm, by deterring others from the use of a truly valuable remedy, that he is induced to offer to the profession a few comments upon so remarkable a statement as is contained in the following passage:—"With regard to the use of caustic for the cure of stricture, it must be obvious that all which has been said as to the injurious effects and dangerous consequences of introducing the most simple dilating instruments into the urethra, will apply with tenfold force to the employment of bougies, 'armed' with escharotic substances, or any other apparatus constructed for the conveyance of such irritating agents. But independently of this objection, I do not hesitate to express my persuasion, that a real organic stricture cannot be removed by caustic; since, even admitting that the agent could be accurately applied, the destructive effect of the nitrate of silver is so limited as to be quite inadequate for the purpose; while that of potass is so diffused that, in the event of destroying the stricture, it must cause a worse one, through the unavoidable loss of substance attending its operation, and the consequent contraction in healing. On the whole, it seems more reasonable to conclude, that in the cases of alleged cure by caustic, there was no real stricture in existence, than to suppose that so improbable, or rather impossible, an achievement had been accomplished." (p. 52.)

The above statement, from beginning to end, is, the author thinks, but a mere assumption, wholly unsupported by facts, and which, in many parts, can be refuted by daily observation. This the author proceeds to shew by a further quotation from Mr. Syme, followed by a detailed criticism of that gentleman's remarks upon the use of the bougie, after which he enters upon the subject of the perinæal section, the opinions respecting which operation, and one so much at variance in Edinburgh and London. Mr. Wade informs us that the principal object of Professor Syme's work is the recommendation of an operation for the division of strictures by perinæal section, in cases where, in his judgment, but few experienced surgeons will consider such a proceeding to be justifiable, as in general success can be obtained by less formidable means. The operation recommended for our adoption by Mr. Syme, is described, in the commencement of his work, as "a simple and easy mode" of curing the most difficult cases of stricture of the urethra, the proceeding being nothing more nor less than a complete division of the obstruction by free

* Remarks on Professor Syme's Operation for the Division of Stricture of the Urethra by Perinæal Section.

external perinæal section. At the conclusion of his Treatise, the author observes—"I trust it will appear established—1. That division of a stricture by external incision is sufficient for the complete remedy of the disease in its most inveterate and obstinate form. 2. That in cases of less obstinacy, but still requiring the frequent use of bougies, division is preferable to dilatation, as affording relief more speedily, permanently, and safely." (p. 58.) To this Mr. Wade replies that division of a stricture by external incision has usually been regarded as justifiable only in cases impervious to instruments, and its performance has at last been undertaken by the best surgeons with reluctance, when, in fact, it has afforded the only means of saving the life of the patient. Mr. Syme's proceedure is thus described:—"A small staff, grooved on its convex side, having been introduced, I made an incision in the raphé of the perinæum, from the bulb to the anus, and then feeling for the stricture, which was easily recognised by its surrounding induration, ran the knife fairly through the whole extent of thickened texture. A full-sized catheter was substituted for the staff, and retained for a few days." (p. 17.) "After all," says Mr. Wade, "which has been said in its favour, it appears that this vaunted operation can only be resorted to in strictures where an instrument can be passed through the obstruction; when, in fact, that which is usually regarded as the greatest difficulty in a bad case has been overcome." It would appear, however, that Mr. Syme does not believe in the existence of a stricture impermeable to instruments, as is evident in the following words:—"The operation by external incision hitherto employed has been resorted to as the refuge of awkwardness or failure in the introduction of instruments, there being no truly impermeable stricture, while the one now advocated can be accomplished only by steps requiring the nicest manipulation." (p. 57.)

Mr. Wade continues: "Before submitting our stricture patients to the operation recommended by Mr. Syme, it will be as well to inquire, first, if the operation be, in reality, always a safe one; secondly, if it can, as we are informed, be relied upon, any more than other operations by perinæal section, as a permanent cure of the worst cases of stricture; lastly, under what circumstances the proceedure may be conscientiously adopted;—is it, in fact, ever necessary? In one of Mr. Syme's cases, we are informed that the operation proved all but fatal; although, with some little inconsistency, the author elsewhere assures us it is perfectly safe."

Within the last month, Mr. Wade tells us, "that he witnessed the performance of this operation by a gentleman, who is quite as dexterous an operator as Professor Syme. No operation could have been more skillfully performed. And the result was, the death of the patient fifteen days after he had been cut. He was about thirty-five years of age, and his constitution appeared good. But little blood was lost during the operation, although some slight hæmorrhage occurred afterwards, at intervals, but not to any considerable amount. Rigors occurred on the fourth day; symptoms of general constitutional irritation supervened; the poor man became gradually weaker, and died about a fortnight after the performance of an operation which the profession is now called upon to adopt as one of entire safety; and that in cases which can, in Mr. Wade's opinion, almost invariably be relieved by other means not endangering life. As to this operation ensuring a permanent cure of stricture, Mr. Wade thinks that, at present, we have not sufficient evidence to warrant any such conclusion, as most of the instances in which it has been performed are of too recent a date to enable us yet to form a satisfactory judgment upon this subject.

Time only can decide the question whether Mr. Syme's operation, in in-

stances of pervious strictures, be attended with more lasting success than when division is skillfully accomplished in impermeable cases, as practised by Sir B. Brodie, Mr. Guthrie, Mr. Fergusson, and others. The most important point, however, for consideration, regarding Mr. Syme's operation, is as to the absolute necessity for its performance. Mr. Wade inquires when an instrument can be passed through a stricture, is it possible or not to afford relief by less hazardous measures, such as are attended with no risk of a fatal result? Such is the potassa fusa, which Mr. Wade asserts, with but few exceptions, has enabled him to succeed in the dilatation of impervious strictures; and in no instance of permeable obstruction has he ever yet, he tells us, failed in widening the passage safely and effectually by a careful use of the caustic alkali.

"If," continues Mr. Wade, "Professor Syme's new operation for the division of stricture had been, in reality, the simple and safe one it is represented to be, the assumptions, arguments, and unjust reflections upon others which his work contains would have remained unnoticed by me, as I should have been content to leave them to the good taste and judgment of the profession for their due and proper appreciation. But have we not already had convincing proofs that the operation is not always a safe one? Witness one of Mr. Syme's own cases, in which he acknowleges the result to have been all but fatal. Witness one of the very first cases in which the operation has been performed in London, when although in that instance the operator was one of the most expert in town, yet the patient died fifteen days afterwards. Well knowing the influence that Mr. Syme's name will be likely to have in inducing others, more particularly the less experienced members of our profession, to adopt any measure receiving his sanction and strong recommendation, I have endeavoured conscientiously to discharge a public duty, by offering such observations as appeared to me the most likely to cause some little reflection before having recourse to the new procedure. Previous to the performance of an operation for the division of a stricture, whether permeable or impermeable, let me earnestly entreat every surgeon, in justice to his patient, first to give the potassa fusa a fair trial, when, if after due perseverance in its use, that remedy should fail, then, but not until then, in my opinion, will such an operation be justifiable. It is surely a good maxim in surgery, that when relief can be equally obtained by two methods, the one imperilling life, the other not, the safe means should always be chosen. Whatever may be the effect of these observations, I shall have the consolation of knowing that at all events one warning voice has been raised against the operation for division, by perinæal section, of a permeable stricture—a proceeding that, as it appears to me, will very rarely be justifiable."

The author appends a note to the effect that since the publication of these remarks on Professor Syme's 'Treatise on Division of Strictures of Urethra by Perinæal Section,' he has heard of three cases so treated, one permeable, the others impermeable, which have proved fatal. These cases have all occurred in the metropolis, within the last two or three months, in the hands of good operators, and must, he observes, surely carry conviction to every unprejudiced mind that division of strictures by perinæal section, whether permeable or impermeable, should ever be regarded as a proceeding attended with considerable hazard. Mr. Wade here states that the more he reflects upon this operation, at present unfortunately too much the fashion, the more convinced he is that its performance can only be justifiable in cases of immediate or impending danger, and that it cannot be much depended upon as a permanent cure of bad cases of urethral obstructions. Experience has proved that old hard strictures, when divided by perinæal section, have generally evinced a strong

tendency to re-contract after the lapse of a few months or years, and it has been often found impossible to prevent their return, notwithstanding a continued and persevering use of the bougie. Every fact, indeed, connected with the performance of this operation appears to him to lead inevitably to this conclusion, that it should only be resorted to as a last resource after the failure of all other means unattended with risk to life, except in those cases where the bladder must be relieved at all hazards.

For further particulars we refer the reader to Mr. Syme's paper in the 'British and Foreign Medico-Chirurgical Review, April, 1850; to a paper by Professor Fergusson, in the 'Medical Gazette,' May 3, 1850; by Professor Partridge, in the 'Lancet,' of April 13, 1850; and by H. Smith, Esq. (in a paper read before the Westminster Medical Society).

§ V. *Syphilitic Diseases.*

16. Under this section we have to notice a work by Mr. Langston Parker, '*The Treatment of Secondary, Constitutional, and Confirmed Syphilis, by a safe and successful Method*,' by Langston Parker, Surgeon to the Queen's Hospital, Birmingham.*

Mr. Parker has, on two previous occasions, given to the profession the results of his experience of syphilis, a subject to which he has devoted a considerable portion of his time and attention. The object of the present publication is to bring more especially into notice the advantages of "mercurial vapour baths," as being attended with more successful results, and productive of less harm to the patient, being less conducive to "mercurial fever, erythesaum cachexia," "et id genus omne" of ills and ailments occasionally attendant upon the old method of exhibiting this remedy.

The author details as follows the mode of applying this bath.

"The patient is placed on a chair, and covered with an oil-cloth lined with flannel, which is supported by a proper frame-work. Under the chair are placed a copper bath, containing water, and a metal plate, on which is put from one to three drachms of the bisulphuret of mercury, or the same quantity of the gray oxide or the binoxide. Under each of these is a spirit lamp. The patient is thus exposed to the influence of three agents, heated air, common steam, and the vapour of mercury, which is thus applied to the whole surface of the body, in a moist state. After the patient has remained in the bath from five to ten minutes, perspiration generally commences, and by the end of twenty or thirty minutes, beyond which I do not prolong the bath, it is generally excessive. The lamps are now removed, and temperature gradually allowed to sink; when the patient has become moderately cool, the coverings are removed, and the body rubbed dry: the patient is suffered to repose in an arm-chair for a short time, during which he drinks a cup of warm decoction of guiacum, sweetened with syrup of sarsaparilla."

Mr. Parker is in the habit of using four mercurial preparations for the bath; the bisulphuret of mercury, the binoxide of mercury, the gray or black oxide, and the iodide.

"The first three preparations are milder than the last, and from half a drachm to four drachms may be used for a bath with perfect safety; the iodide must be used in smaller quantities. Nearly the whole of the preparation is

* The Treatment of Secondary, Constitutional, and Confirmed Syphilis by a Safe and Successful Method, with numerous Cases and Clinical Observations, by Langston Parker, Surgeon to the Queen's Hospital, Birmingham. London, Churchill, 1850.

rapidly converted into vapour, and, unlike the other preparations, leaves scarcely any ash behind. From five grains to half a drachm of the iodide is sufficient, and it is better to use it in small quantities unmixed with a larger quantity of either of the other preparations. In affections of the testes (sarcocele) and of the bones (the various forms of ostitis or periostitis), a combination of a scruple of the iodide, and one or two drachms of the bisulphuret or binoxide would be a proper form. For local application to the cavities of the nose or mouth, a few grains only should be employed, as the vapour of the iodide of mercury is more irritating and more powerful than that of either of the other preparations."

The preparatory treatment necessary consists in attention to the secretions; the prohibition of wine, spirits, &c. The patient should be free from fever, the tongue clean, and freedom from organic disease, especially of the heart and lungs, ascertained.

Mr. Parker's plan of treatment does not necessitate the patient's foregoing his ordinary business occupation, or that he should be confined to the house during its use. He admits, however, that confinement to bed or to a warm room accelerates its effects. The diet is to be "light, nutritious, and unstimulating; milk, chocolate, or cocoa night and morning, animal food for dinner, and weak wine and water. Smoking must be prohibited, especially in diseases of the throat and nose." In a majority of cases, the moist mercurial vapour bath, used as already described, is capable of curing the disease without the addition of internal medicine. Mr. Parker, however, considers the cure to be expedited by its administration; he, therefore, often combines with it the exhibition of the decoctions of sarsaparilla or guiacum, drank warm night and morning and immediately after leaving the bath. If it is deemed necessary to give mercury internally, very small doses must be administered.

The effects of the bath vary, of course, under different circumstances. "If the general health of the patient be apparently good, and we have to control a single isolated symptom of disease, such as a primary sore, an enlarged testis, or an indurated cicatrix, and the baths be used too frequently, the patient would become a little languid, and probably a little thinner; this would be avoided by properly timing the intervals between the baths. Should the patient be labouring under general constitutional taint, and exhibit, as local symptoms, loss of hair, sore throat, ulcer of the nose, or skin diseases, he most invariably gets fat under the treatment. The mouth is commonly affected after using four or six baths, more quickly if the head be immersed, which is better; the patient can bear the head in the bath for fifteen or even twenty minutes without inconvenience; patients vary in this particular; and it depends very much on the form of mercurial employed. The gums, when affected, are red, elevated, and tender, but the baths never produce salivation or ulceration of the mouth.

The work concludes with an account of thirty-two cases of secondary syphilis which had been treated by the mercurial vapour bath combined with the exhibition of medicine (some of which, by the way, are not *unimportant* auxiliaries, to say the least of them; for instance, the hydriodate of potass, corrosive sublimate, iodide of iron, &c.) in which the cure was rapidly and permanently effected.

§ VI. *Diseases of the Breasts.*

17. The only work we have to notice under this section is that by Mr. John Birkett, Assistant-Surgeon to Guy's Hospital: it is entitled, '*Diseases of*

the Breast, and their Treatment;' and it is the dissertation to which the Jacksonian Prize Essay for 1848 was awarded by the council of the Royal College of Surgeons of England; a fact which, of itself, entitles it to, and invests it with, importance and interest. Every known disease to which the human mammary gland is subject meets with careful consideration in this essay, and it would be difficult to select one which is better fitted for remark than another, so well has the author fulfilled his task; but after attentive perusal we subjoin the following extracts as best calculated to characterise the style and value of the work:—

At p. 54, Mr. Birkett, under the title of 'Diseases depending upon the development of Cysts and Intra-Cystic Growths,' proceeds to the consideration of that condition of the breast which depends upon the development of closed cavities, or, as they are termed, Cysts within its fascial envelope, analogous to "carcinoma mammæ hydatides" of Sir Charles Bell; "The hydatid disease of the breast," Sir A. Cooper. "Sero-cystic disease," Sir Benjamin Brodie; and "unilocular or multilocular cysts," by French authors.

The author informs us that two classes of Cysts are found in the mammary gland, each characterised by marked anatomical peculiarities. Each class also presents fluid or solid contents, perfectly characteristic, and differing essentially in their nature and origin. They may be arranged as follows:—

I. Cysts depending upon dilitation and a morbid condition of the lactiferous tube.

II. Cysts produced by a peculiar action in the fibro-cellular envelope of the gland tissue, and the consequence of a morbid state of the function of nutrition.

Cystoid formations of the first class may be developed,—

1. Near the nipple,—sub-areolar.
2. In the substance of the gland,—intra-glandular.
3. On the posterior surface of the gland,—sub-glandular.

The simplest form in which these cysts exist, is that in which they are commonly found upon the posterior surface of the gland. Rarely assuming the state of an important disease, their presence indicates a certain morbid action, and they are the type, as it were, of this class.

The size varies from an almost imperceptible point to that of a filbert, rarely larger. Their colour, which depends upon that of the contents, varies from yellow, pale red, or brown, until it becomes almost black, or of a dirty green tint. They possess an external investment of the fibro-cellular tissue, and the lining membrane consists of a very beautiful coherent epithelium. Each epithelial cell is oval, contains a nucleus, and is somewhat granular in texture. Thus this epithelium closely resembles that of the ducts.

The contents of these cysts are of a mucous nature, of a pale yellow, reddish, or dull green tint. They exhibit a granular basis, fat globules, with globules and colostrum corpuscles in the epithelium. The colour probably depends upon decomposition, in the presence of hematin. Thus the examination of the contents of these cysts clearly proves their origin; for as they exhibit all the substances secreted by the gland, it is fair to presume they have the greatest affinity to, if they are not identical with, some portion of the true glandular tissue. Another means of proof is afforded, which indubitably demonstrates the above position. In the breasts of middle aged women it is not at all uncommon to find the ducts dilated and filled, as if injected with the same mucous greenish fluid, which also present structures identical with those in the cysts. The small isolated cysts probably arise in consequence of obstruction in the caliber of the minute ducts, and to this cause must be attributed the formation of larger cysts of this class, which occur either in the substance of the gland, or beneath the areola.

In those instances of diseases of the larger ducts occurring near the nipple and presenting a cystiform character, with which Mr. Birkett has met and examined, one only, having been recently removed, presented every structure in common with the contents of the cysts as before described. In addition there existed a well-marked, firm, coherent mass, which might be removed entire after maceration in spirit, and it then presented a perfect cast of the lactiferous tube. The morbid action which produces these tissues, Mr. Birkett believes to be as follows,—In the first place, an excess of secretion takes place in the duct, which, for some cause or other—malformation of the nipple, or obstruction of the duct by pressure—does not flow away spontaneously, although, perhaps, it may be made to ooze out. The fluid becoming absorbed, the more solid material, the epithelium, remains behind, leaving a coherent mass of more or less solidity. This body may cause irritation, an excited action is induced, blastema is effused, and nucleated cells, which obtain a degree of fibrillation, are formed; hence the appearance of organised growths found in the ducts. Mr. Birkett arrives at the following conclusions from these facts:—

1. That the lactiferous ducts are liable to dilatations resembling cysts; that this morbid condition simulates more important diseases; hence, this suspicion being excited, the excision of the tumour has been resorted to.

2. There is no evidence to prove, from minute examination, that the growth within the ducts enjoy any characters in common, either with the cysto-sarcomatous or carcinomatous and new formations: and

3. That this morbid condition belongs to the class of the non-contaminating diseases.

II. Cysts containing fluid as well as solid growths.

True cyst formations are frequently found in the mammary gland, or at least within its fascial envelope. They appear to originate in the uniting tissue about the lobes, and in Mr. Birkett's opinion, and which he proceeds to prove, have a close relation with certain morbid states of nutrition, if they be not in fact a stage in the formation of new growths.

It is highly probable, he remarks, that as we have abnormal secretion, so we may expect to find abnormal nutrition, and if of one kind, why not of another? That is, if we find an abnormal development of true gland tissue constituting *genuine* hypertrophy, *general* or *partial*, why may we not find *imperfect* hypertrophy, or an arrest of development at certain stages, through which we now know that all perfectly-formed tissues have progressed?

These cysts, with fluid contents, occur singly, and attain an immense size, or in great numbers of very various dimensions.

They are situated in all parts of the organ, on its surface, in its interior, or behind the gland. They are perfectly distinct from every other kind of cyst, and must not be confounded with that cyst containing limpid fluid, and characterised by the presence of "echinococcus hominis," as well as that form, which very rarely occurs, termed "Hydrops saccatus mammæ."

It is impossible to follow Mr. Birkett through all his arguments, as we cannot supply our readers with the diagrams illustrative thereof, but he propounds the following conclusions:

1. That certain collections of fluid take place in the areolar tissue of the mammary gland.

2. That a cyst or closed cavity is formed and lined with tesselated or hexagonal epithelium.

3. That the physiological relations of this fluid may be regarded as differing from ordinary serum, and that it may be considered as a superabundant effusion of blastema.

4. That the intra-cystic growths being developed within the sphere of nutri-

tion of the mammary gland, present more or less resemblance to the gland tissue, both to the unassisted eye, as well as when examined with more minuteness.

5. That from the observations above made these growths may be regarded as an imperfectly developed gland tissue: and

6. That their respective tissue presents no resemblance to that of the carcinomata, and that there exists no evidence to prove that it has the power of contaminating other tissues or of being generated in any other organ belonging to the body.

Mr. Birkett sees no reason to alter the nomenclature of these growths—namely, "cysted sarcomatous," remembering, however, that this merely implies the mode of growth, and not their histological affinities.

"Sero cystic sarcoma indicates very accurately that condition of a new growth in which both the fluid effusion and solid formation simultaneously exist, and may, therefore, be retained."

18. *Agalactia*, another subject which is lucidly treated of by Mr. Birkett, is a term implying the total absence of the secretion of milk.

This functional anomaly he states to be rare, and it is very difficult to account for its occurrence when the mammary gland is fully formed. However, such cases do occur. In some women the gland is so little developed that neither during pregnancy nor after parturition does any increase take place, and with them milk is not secreted.

When a gland exists and the milk does not become secreted, the child should be placed to the breast, and warmth applied to the mammæ. In the absence of a gland nothing can be done. (Vide supra, p. 224).

Mr. Birkett's essay contains the report of a large number of cases, bearing upon the particular points and theories which he advances. A large number of these cases have been selected and translated from the published works of English and foreign authors—and, although this may in a degree detract somewhat from the originality, it in nowise diminishes the value of the work; for next to the publication of our own private and personal experience, the careful selecting and compiling that of others upon the same subject, becomes most useful and instructive. The work contains also a great many well executed diagrams and drawings.

§ VII. *Ophthalmology.*

19. We have briefly to notice two works under this head, first that "*Of the Crystalline Lens and Cataract*," by B. E. Brodhurst, Esq. This is divided into three sections, the first of which contains the anatomy of the crystalline lens; the second, the general character of cataract; whilst the third treats of the diagnosis, prognosis, and operations for the cure of the disease. After careful perusal of this work, we are bound to state that we find nothing sufficiently novel or interesting to warrant our inserting an abstract of it.

The second work is "*The Anatomy, Physiology, and Pathology of the Eye*," by Henry Howard, Esq., which also contains nothing worthy of republication.

We have, likewise, the pleasure of again noticing Mr. Dalrymple's splendid work on the "*Pathology of the Human Eye*," Part VI of which has just appeared. The subjects illustrated in this part are congestion of the choroid, glaucoma, &c. The plates, as usual, are most admirable.

III.

REPORT ON THE PROGRESS OF MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN.

BY THE EDITOR.

§ I. *Anæsthesia in Midwifery.*

1. The only communications on the subject of anæsthesia in midwifery, which we think it neeessary to mention in the present report, are one by Dr. Beatty,* and a seeond by Dr. Robert Barnes.†

The result of Dr. Beatty's experience appears to be entirely confirmatory of the views expressed by Dr. Simpson. He explains its harmlessness in parturicnt cases when compared with surgical patients, by the fact that the former inhale in the recumbent posture, in which a minimum quantity suffices to produce the desired effects; and likewise, that the stomach is seldom in a state of repletion, a condition which is now known to facilitate the occurrcnce of unfavorable symptoms. As regards its administration, Dr. Beatty informs us that he always uses a handkerehief. In ordinary cases he commences the inhalation when the os uteri is nearly dilated, and never produces perfect insensibility in natural labour, but is careful to remove the handkerchief as soon as the breathing becomes sonorous. In this way the patient is never deprived of consciousness, while she is relieved from the severity of the pains.

The main object of Dr. Beatty's paper is, however, to show that in lingering labour, with insufficient pains, the use of chloroform may be beneficially combined with that of ergot. He narrates several cases which fairly exemplify the advantages of this proceeding.

—Dr. Barnes, whose communication we nexl notice, has always been an opponent to anæsthesia in midwifery. On the present occasion he publishes a summary of the experience of Dr. Sachs, of the Berlin Lying-in Hospital, which, to say the least, is strangely antagonistic to that of British obstctrical physicians. Before we detail thc experiments with chloroform, we shall give the results of Dr. Sachs' trials with ether, as reported by Dr. Barnes. Dr. Sachs relates one case in which ether was employed, and the forceps resorted to. Complete suspension of the pains was induced; the uterus was felt to be flabby and relaxed. Metritis ensued, and death in fourteen days. In a second case, a second child, the cord presenting, ether was given before turning. Contractions of the uterus were completely suspended for some time. On the following day convulsions set in, but from this the patient happily recovered. In a third case, complete paralysation of the uterus was induced. Fever and pain in the region of the uterus occurring on the third day, bleeding was resorted to. In a fourth case, a natural labour, ether caused cessation of the pains.

Rcflecting on the unfavorable result of the above cases, Dr. Sachs observes, that he did not feel himself justified in rcpeating his experiments.

* Dublin Quarterly Journal, Aug. 1850. † Lancet, July 13, 1850.

Dissatisfied with ether, Dr. Sachs resorted to chloroform. He relates minutely the course of twenty-seven natural labours in which he used that agent to induce anæsthesia. Dr. Barnes has made a tabular analysis of these cases, in order to show more distinctly the influence of chloroform inhalation upon the pulse, the respiration, the labour-pains and sensation, and the complications which arose. Dr. Sachs is better pleased with chloroform than with ether, but in Dr. Barnes's opinion, the twenty-seven observations which inspired him with that opinion by no means justify the use of chloroform in natural labour. It may be safely predicted, Dr. Barnes observes, that twenty-seven consecutive cases of natural labour, conducted on the principle of avoiding unnecessary interference, will not present so many unfavorable accidents as Dr. Sachs has so candidly recorded. The average proportion of deaths in childbed in London does not exceed one in 150, and the other accidents observed by Dr. Sachs are still more rare.

In giving a general account of the effects of chloroform in parturition, Dr. Barnes has appended a table, comprising the histories of twenty-seven cases in which Dr. Sachs employed anæsthesia.

From this table it appears, in reference to the uterine contractions, that out of fifteen cases in which complete anæsthesia was induced, in eleven the uterine contractions were stopped or enfeebled, and the labour consequently retarded. Out of twelve cases in which a minor degree of narcotism was induced, in eight the uterine contractions were enfeebled. It is also deserving of remark, that the chloroform appears to have been given with unusual precautions: its administration was in most cases withheld until the membranes were ruptured, the os uteri fully expanded, and the head pressing on the perinæum: in short, until the delivery was on the point of completion. Dr. Barnes notices that, whenever inhalation is practised early in labour—that is, before the expulsive stage is advanced,—uterine contraction is always impaired and labour retarded. If the inhalation be deferred to a later period, the conclusion of the expulsive stage, as was done in most of the cases before us, the arrest of contraction in the womb is not so constant. So great is the accumulated excitability of the spinal marrow at the epoch of parturition,—so intense is the excitation of the esodic nerves, distributed in profusion about the orifice of the vagina, by the contact of the fœtal head, that a moderate inhalation is quite ineffectual in subduing the vehement activity of the diastaltic function.

The diminution of the uterine contractions under chloroform shows conclusively, in Dr. Barnes's opinion, that chloroform exercises a depressing effect, analogous to that of shock, on the spinal centre. It also proves, he thinks, beyond a doubt that chloroform exerts its poisonous action upon the spinal and ganglionic system at the same time as it does upon the brain.

But when chloroform does not arrest the final efforts of the womb and the expiratory muscles to expel the child, Dr. Barnes inquires whether it is free from all other injurious effects? The next paragraph will show.

In four cases there was laceration of the perinæum. One of the many advantages promised to parturient women from anæsthesia was exemption from this distressing accident. That this hope has resulted in disappointment may, he thinks, be attributed partly to the fact, that the relaxation of the soft parts which ensues from the use of chloroform is of a different kind from the normal and gradual relaxation which occurs when the provisions of nature are undisturbed and unperverted. The relaxation induced by chloroform is probably simply a relaxation of the muscular fibre. The natural relaxation extends to the cellular tissue and the skin.

Dr. Barnes further remarks, "The physiologist will also observe in this

stage a proof that pain—he means the cerebral, the psychical perception of pain—has its use; and that the abolition of pain has its danger. It has been remarked that chloroform inhalation towards the completion of the expulsive stage does not always arrest the action of the expiratory muscles. It is well known that the expiratory muscles cannot act efficiently unless the chest contain a certain quantity of air shut in by the closure of the glottis. It is by means of the powerful action of the expiratory muscles, added to the contraction of the uterus, that the head is driven through the ostium vaginæ. The danger of laceration of the perinæum would in many cases be great had not Nature provided a safeguard against excessive and untimely expulsive energy—that safeguard lies in pain. It did not escape the acute observation of Denman, "that a cry uttered at the acme of a bearing-down effort, by opening the glottis, and permitting the escape of the retained breath, at once broke the force of the expulsive effort, reduced the pressure on the perinæum and uterus, and saved it from rupture." The agony of the pain, occasioned by the stretching of the external parts, frequently fulfils the same indication; and the obstetric practitioner may often have occasion to observe how the strain is taken off the perinæum, by a loud cry of anguish. . . . He will admire how Nature can extract real good out of apparent evil." Dr. Barnes then observes, that "This influence is annulled when anæsthesia is induced; when the sensation of pain is removed, the system takes no alarm at the impending danger; the glottis remains closed; the expiratory muscles continue to act with all the blind violence of the diastaltic function; the order of parturition is subverted,—one essential link in the chain of the phenomena of labour is wanting; the head is driven with irresistible fury upon the perinæum, before the process of dilatation is complete, and laceration is the result."

This is, indeed, a fearful portraiture; it is fortunate, however, that many other practitioners, of larger experience than Mr. Barnes, do not entertain the same apprehensions. Continuing the catalogue of evils to be extracted from Dr. Sachs' table, Dr. Barnes next informs us that convulsions occurred in one case, ending fatally; while in two others there were twitchings of the face or shivering; and in one case metritis and dysentery followed.

Having thus disposed of the table, Dr. Barnes seeks to determine whether by chloroform we obtain escape from the pain of labour, and the shock consequent thereon. This he attempts by putting three questions—

1. Is the pain of labour physiological or pathological, that is, beneficial or injurious?

2. Is the abolition of the sense of pain in the parturient woman unattended by danger?

3. Is it true that anæsthetic agents really annihilate pain and shock?

To the first question he replies, that the pain is physiological, referring for detail to a former communication. He replies to the second question, by stating that an additional danger is offered in the shock from chloroform. Referring to Sachs' tables, he shews that a depressing effect upon the nervous system is exhibited by the effect of the inhalation upon the pulse and respiration.

To the third question Dr. Barnes replies in the negative, persisting in regarding the noises and movements made during the condition of anæsthesia as indicative of sensation, although the patient does not retain the recollection of suffering when she regains her sensibility. The same argument would however apply to surgery, in which we have daily evidence to the contrary.

§ II. *Diseases of Women unconnected with Pregnancy.*

2. *Imperforate vagina.*—Cases of this condition have been recorded by Dr. S. Jackson,* and Mr. Newnham.†

In Dr. Jackson's case the patient was a respectable unmarried female, æt. 25, and well developed in regard to the signs of puberty; the catamenia, however, had never appeared, and for this she was for a long while treated in former years. Seven years ago, the physician under whose care she has since been, was called, and found a tumour in the middle of the abdomen, rising some way above the umbilicus, and feeling altogether like a distended uterus; upon each side of this, and extending towards the groins, was an elongated and much smaller tumour. On examination by the rectum, the cavity of the pelvis seemed to be filled by a tumour as large and solid as the fœtal head. The external and internal labia were well formed; but on separating the latter there was found to be a complete closure of the vagina. The lateral tumours since that time have been about stationary, but the central tumour has varied somewhat in size. Meanwhile, the patient had suffered severely from bearing-down and other pains about the pelvis, with considerable dysuria; the general health, however, was tolerably good, her death at last being rather sudden, and connected with some oppression about the chest, the cause of which was not ascertained on dissection. In regard to an operation, which seemed to have been so imperatively required, a consultation was held with two or three professed surgeons when the occlusion was discovered, but the opinions were against it.

On examination after death, the tumours were found as above described, the uterus and vagina being immensely distended, as well as the Fallopean tubes, with dark inodorous fluid.

—Mr. Newnham's case is a very instructive one. The patient was a lady, who appears to have been maltreated in her labour, her attendant having failed to extract the placenta. At the end of a week, its removal was attempted, but the parts were so inflamed and sensitive that the case was abandoned to nature. From this time her health broke up, and she became the subject of pelvic abscess, from which she was convalescent at the end of twelve months.

On now returning to her husband, coition was found to be impossible, and Mr. Newnham was eventually consulted, and examination demonstrated an unyielding vaginal cicatrix. This was carefully divided, and dilatation effected by graduated bougies.

3. *Menstruation—Causes of its advance and retardation.*—In a paper, by Dr. Tilt, the causes which modify the period of first menstruation in woman, are divided into intrinsic and extrinsic. The former class includes causes arising from—1. The race or stock from which the female descends. 2. The parents from whom she inherits her constitutional tendencies. 3. Maternal customs. The extrinsic causes are referable to temperature, habitation, and civilization.

Temperature is generally supposed to have considerable influence in maturing the female generative powers, a high temperature forwarding, as a low temperature retards, them. Dr. Tilt believes that the general impression is founded on fact, and it appears to be borne out statistically, in the circumstance, that while in Calcutta the mean age of menstruation is twelve years

* American Journal of Medical Science, July, 1850.

† Provincial Medical and Surgical Journal, Sept. 4, 1850.

and six months, in London it is fourteen years, nine months, and in Copenhagen sixteen years.

The influence of habitation on the functions has been shown by M. Brien de Boismont, who finds that it is considerably earlier in cities than in the country. The same author has also demonstrated the *forcing* effect of civilization. Dr. Tilt concludes his paper with a comprehensive table, which exhibits the mean age of menstruation throughout the globe, as fourteen years, four months, eighteen days.*

4. *Labium—Tumours of.*—Two cases of encysted tumours of the labium have been recently recorded. The first, by Mr. Cottingham,† is that of a widow, who had a tumour the size of a walnut, which, as the patient refused excision, was healed successfully by means of a seton.

The second case, reported by Dr. M'Donnell, was treated by the application of nitrate of silver to the interior of the cyst. There was more than common interest attached to this case, from the resemblance of the tumour to pudendal hernia, in the circumstance of its receiving an impulse on coughing. In commenting on this case, the author alludes to the usual modes of treatment, which he states to be four. These are—1. Complete dissection out of the whole of the cyst—a plan which must be extremely difficult in most cases, in all extremely painful, and in such a case as the above, quite impracticable. 2. Laying open the cyst, and filling it up with charpie. 3. Seton; and 4. Removal of the fluid, and then compression, so as to bring the walls of the cyst into close apposition. The plan of treatment which the author has employed for some years past, has been to cauterize, with nitrate of silver, the lining of the membrane of the cyst, so as to cause adhesive inflammation; and this process he has found to be so readily excited by the caustic that he has never been obliged to repeat it a second time. In every case thus treated, a speedy cure has followed, unattended by any bad consequences, and the patient has not been aware, in the majority of instances, that anything beyond the mere puncture of the cyst has been attempted.‡

5. *Neuralgia of the uterus.*—M. Valleix has pointed out a class of cases in which the cervix uteri, usually insensible, becomes the seat of the most acute suffering of a neuralgic nature, and has pointed out the diagnostic distinctions between these and cases of painful inflammatory congestion of that organ.

This neuralgic form of disease is frequently met with, but is not often recognised. In all the cases which have come under M. Valleix's notice, the affection has been accompanied by pain following the course of the lumbo-abdominal nerves. He therefore regards the neuralgia of the cervix as part of the more extensive lumbo-abdominal neuralgia. This feature is of importance in reference to the diagnosis of neuralgia from other pains of the cervix uteri.

The subjects of this neuralgic affection present all the characters of sufferers from chronic uterine congestion, with which disease the former is almost always confounded. The pain is much augmented at the menstrual period, producing dysmenorrhœa. The vaginal discharge which occurs in these cases is analogous to the increased secretion from the mucous membrane of the eyelids in certain affections of the trifacial nerve. They are both functional disturbances originating in disordered nervous influence.

Careful exploration is of the first importance to its detection. The neck of

* Edinburgh Monthly Journal, Oct. 1850. † Lancet, July 6, 1850.
‡ British American Journal, 1850.

the uterus will be found tender to the touch, often so to a great degree, the tenderness being most acute at the sides of the cervix, while the anterior and posterior surfaces are free. The cervix is of its ordinary form and size.

On examining the abdomen and loins, a neuralgic pain will be detected in the hypogastrium a little beyond the middle line on one side, most frequently the left only. Along the course of the first pair of lumbar nerves will be discovered other points, more or less acutely painful, and more or less isolated. The painful point always corresponds with the seat of pain in the uterus.

The chief diagnostic features are, the degree and isolation of the tenderness, the intermittent character of the pain, and the occurrence of the neuralgia of the abdomen and loins.

The treatment adopted by M. Valleix has been blisters to the hypogastric region, cauterization of the cervix, and narcotic injections, with absolute rest and general treatment.

— As may be seen by a reference to Vol. X of this Journal (p. 217), M. Malgaigne, advises incision of the cervix in these cases.

— The same affection is probably alluded to in a work recently published by Dr. Martin Hassing, in which it is called the "Colic to which Prostitutes are liable." This author professes to have met with ninety cases of the disease. In describing the malady, he states that prostitutes are frequently seized with hypogastric pains, which are not aggravated by pressure. The abdomen remains soft, and the sound on percussion is normal. There is occasional strangury, and some fever. The duration of the complaint is from two to five days.

In twenty-four cases this symptom coincided with granular ulceration of the os uteri, in four with vaginitis, in three with condylomata, in seventeen with primary sores, in forty-three there was no complication of the genital organs.

The author regards the life of debauchery which these women lead as the predisposing cause of the disorder; the exciting causes he considers to be immoderate intercourse, cold, &c.*

6. *Cervix uteri—Erectile engorgement of.*—Dr. Tilt has taken notice of a condition of the os uteri, to which he has applied the above designation, and which is important in reference to the *vexata questio* of ulceration of that organ. Observing that the erectile structure of the os uteri was not acknowledged by Mr. Snow Beck, whose researches on the anatomy of these organs are well known, Dr. Tilt informs us that, with the aid of Mr. Queckett, he made microscopic investigations into the disposition of the minute vessels in these specimens. The result has been, that on examining perpendicular sections of the lips of the os uteri of two young subjects, Mr. Queckett showed distinctly the looping of the blood-vessels, their varicose distension in certain points, and more particularly at the branching off of blood-vessels one from another—a disposition of blood-vessels which is characteristic of erectile tissue, as it exists in the nipple. The third specimen was taken from an old woman; the os uteri was so completely effaced, that although there was a very small aperture communicating with the womb, this aperture was not surrounded by any lips. On examining, however, sections of tissue removed from the vicinity of this aperture, no varicose disposition of the minute vessels could be distinguished. Neither could it in a fourth specimen, exactly similar to the preceding one, which was sent to the author by Dr. Allen.

These researches, the author observes, tend to prove that during the repro-

* Noticed in Provincial Medical and Surgical Journal.

ductive portion of the lifetime of woman the lips of the womb are permeated by minute blood-vessels, which are similar in disposition and structure to those of the nipple and other erectile tissues; but he admits that further investigations and careful injections are necessary to give certainty to what offers as probable.

Dr. Tilt further remarks that, supposing the erectile disposition of vessels in the neck of the womb to be fully confirmed, the morbid development of that disposition would well account for a form of uterine disease, which has been described by Dr. Ashwell, and which Duparque has confounded with others, under the name of "engorgements congestifs du col," and which Professor Recamier has long ngo called "erectile swellings of the womb," having been led to adopt that denomination, not on account of any anatomical researches, but by the peculiar characteristics of such tumours.

Sometimes both lips are swollen, but generally only one is so. Out of twenty well-marked cases of this description which Dr. Tilt has observed, in two the swelling was general; in eight, thc posterior lip was swollen; and in ten, the anterior. When one lip is swollen, the shape which it assumes puts one more in mind of thc rump of a fowl than of anything else. Most of the author's twenty patients were of a lymphatico-sanguine temperament; they were all married; and in five the complaint came on within the six months which followed marriage. In almost all the cases intercourse was painful. Sixteen of the cases were dispensary patients; the other four were ladies refractory to the exigencies of judicious treatment.

These details lead the author to infer that this particular form of uterine disease is principally caused by matrimonial intercourse, and by the necessity in which the poor are placed, on standing about for hours after they have been more or less severely cauterized. This influence of long standing after cauterization is bornc out, so far as his experience goes, by the fact of the same thing occurring in womcn living in a higher sphere, and who, very soon after cauterization, are found dancing till two or three o'clock in the morning.

The author believes that this form of disease may be attended by, and caused by, erosion of deeply-seated ulcerations of the cervix; but that it does not always depend upon ulceration is proved by the fact that in twelve out of twenty cases he could not detect any solution of continuity of the uterine mucous membrane.

In pointing out the treatment he employs in such cases, the author informs us that when the tumour is hot and tense, and red, leeching and scarifications must be had recourse to. The cases are obstinate, on account of the recurrence of the causes alluded to; and it is better to ring the changes on the different styptics than to persevere in the use of one. Dr. Tilt never employs potassa fusa in this form of uterine disease; he principally makes use of nitrate of silver, and has, with advantage, alternated its use with that of the solid sulphate of copper, or a strong solution of diacetate of lead, or of the iodide of iron.

In conclusion, Dr. Tilt denies the propriety of leaving these cases to Nature; and remarks on the inutility of vaginal injections as a substitutc for speculum treatment.*

7. *Uterus—Retroversion of—New treatment.*—M. Amussat proposes to accomplish a permanent cure in the above displacement, by inducing ulceration and subsequent adhesion between the posterior wall of the vagina and the corresponding surface of thc cervix uteri, by which he informs us that he prevents the tilting forward of the os, and corresponding depression of the

* Lancet, Aug. 10, 1850.

fundus. Two cases are related, in which the plan proposed proved eminently successful, and the author professes to have met with many others.*

8. *Uterus—Tuberculosis of.*—Mr. Holmes Coote gives a case of this affection, noticing that it has been seldom alluded to by authors. The subject was an aged female lunatic. On examination after death, the uterus exhibited numerous yellow spots under the peritoneal covering; both ovaries were similarly diseased. On opening the uterus, the cavity was entirely lined by a layer of yellow caseous tubercular matter.

Mr. Coote, after mentioning the rarity of this condition, states his opinion that it may be the commencement of the rare uterine disease alluded to by Dr. Ramsbotham.†

9. *Uterus—Excision of.*—A case, in which the entire uterus was removed for supposed cauliflower excrescence, is narrated by Dr. Paul Eve. The operation was successful, as far as its immediate results are concerned, but the woman died three months after of encephaloid disease.‡

10. *Ovariotomy.*—An interesting and important discussion on this operation has lately occurred at the 'Medico Chirurgical Society,' on the occasion of the detail of a successful case by Mr. Duffin. The case alluded to is as follows:

A woman, æt. 38, having her abdomen enlarged to the size of the eighth month of pregnancy, this size having been attained in seven or eight months, her general health appearing to be good, applied to the author for relief by operation. The rapid growth of the tumour, which appeared to be connected with the left ovarium, had been accompanied by neuralgic pains in the right thigh, in consequence of pressure on the sciatic nerve of that side. The tumour was very moveable, indicating the absence of adhesions. The patient was very urgent in her desire for the operation, and very confident that it would be successful, and it was consequently performed, on the 27th of August last, by the author, assisted by Messrs. Fergusson, Ure, and Henry Smith, chloroform having been previously administered by Dr. Snow. The incision, at first of only sufficient size to admit the forefinger for exploration, afterwards enlarged to three inches, was made in the linea alba, midway between the umbilicus and the pubes. The absence of adhesions having been ascertained, the sac was punctured by a trocar, and 130 ounces of a viscid, ropy fluid, of a light brown colour, were let out. The collapsed cyst, containing a smaller cyst the size of an orange, was drawn through the incision, and its pedicle secured by ligatures. The tumour was then separated, and the pedicle and ligatures were prevented from receding into the cavity of the abdomen by other ligatures attaching them to the wound. The ligatures came away on the 15th day, and the wound was healed on the 22d day, the abdomen resuming its natural shape and size.

The patient was kept on a light diet, took opium in sufficient doses for six successive nights, and the bowels were opened by enemata. On the 18th day she was able to get about a little. Her recovery has been complete, and she has been enabled to resume the occupation of dress-maker.

— Subsequently to the narration of this case, Dr. Robert Lee presented a memoir containing an analysis of 108 cases of ovariotomy. He commenced with the history of a case of ovarian tumour successfully removed by Dr. Nathan Smirke in 1822, after which he gave an account of an operation by Mr. Lizars in 1823, when *no* ovarian disease was found after the abdomen

* Gazette Médicale, Mars, 1850. † Medical Gazette, July 14, 1850.
‡ American Journal of the Medical Sciences, Oct. 1850.

had been opened; and of three other operations by the same surgeon, when the diagnosis was more accurate, in 1825 and 1826; and of two operations by Dr. Granville, in 1826 and 1827. He then refers to an operation performed, in 1833, by Mr. Jeaffreson; and to three operations by Mr. King, in 1834 and 1836.

During the last 27 years the operation has been attempted or performed more than 130 times in Great Britain, of 108 cases of which authentic reports have been received. In 37 cases either no ovarian cyst or tumour to remove existed, or there were present ovarian cysts and tumours, the removal of which was found to be impracticable, and the operation was abandoned. Of these 37 cases, 14 died. The analysis given of 108 cases of ovariotomy shows that in 37, or about one third of the whole number, it was impossible to determine *previously* whether ovarian disease actually existed, or, when it did exist, whether its removal was practicable. Of the 71 cases in which ovarian cysts and tumours were removed, 24 proved fatal, in 14 of which the operation could not be completed.

In the tabular analysis of the 108 cases appended to the paper, it appears that 45 cases are reported by Dr. Clay, and 11 by Mr. Lane; and to both of these gentlemen the author expresses his thanks for the manner in which they have communicated to him the entire results of their experience of the operation.

The discussion which ensued was of a most animated character, and as it elicited the opinions of some of the most celebrated surgeons of the metropolis, we shall present it to our readers with but little abbreviation.

Mr. Cæsar Hawkins, who commenced the debate, said—"As my name has been enumerated among those who have performed this operation, it is obvious that I have been disposed to look upon it favorably, from the accounts of the cases which have been published, in which it has been done. But I must confess that for the last three or four years I have not altogether felt the same confidence in the propriety of the operation, and have seen the great necessity of the fullest information regarding it. It is well known that the operation has been very frequently attempted, and it is generally believed that a considerable proportion of the operations have been fatal, or have been impossible of completion, of which the public have no information. Nor could I overlook the fact, that the operation has now been attempted by ten surgeons attached to hospitals in London; that not one of these gentlemen has performed it twice; and that of these ten cases, the only one in which the patient was fortunate enough to recover from the operation was that in which I myself operated. I think, therefore, that the society and the profession at large are much indebted to Dr. Lee for the table of cases which he has laid before us; and I feel this the more, as I believe it is owing to my suggestion that he has done this; and I must say I was delighted, when I spoke to him about it, to see him take out his tablets, and enter my suggestion in his usual short-hand notes. I felt that many of the cases hitherto recorded as having been done in foreign countries, and mixed up with our own in previous tables, were not detailed with sufficient accuracy or precision to be at all relied upon as safe guides. I felt assured that a sufficient collection of English cases now existed to settle completely the great question of the principle of the operation, and that either through the right feeling of the operators themselves, or through some of their friends, authentic histories of almost every case could be obtained, whether successful or unsuccessful, by the industry and perseverance of Dr. Lee, if he undertook such an investigation. I have little doubt that I shall be able, by examining such a table, to satisfy my own mind; and I dare say some gentlemen may already have

thought, that if in so large a number as thirty-seven cases—a third of the number contained in the table now given to us—it were unable to have the operation completed because of adhesions, or because there was no tumour at all, that the propriety of the operation being performed in any case whatever was at once determined in the negative. But one thing has struck me with much regret, in the reading of this list of operations: I mean the omission of the names of two gentlemen, who are generally supposed to have done this operation very frequently in London. I do not know whether these gentlemen are present in this room, but I hope that they are. It is not my intention to say anything that can be considered offensive, and I hope therefore that they will not be offended with me, if I appeal to them, by expressing my desire, that before this table is published, as I doubt not it will be, by the council, they will give the result of their experience to Dr. Lee, and that he may be allowed to incorporate their cases, with any others that he may hear of, in an amended table, with a more complete analysis of the results. One of these gentlemen, whom I venture to allude to,—I mean Dr. Frederic Bird,—has actually put on record, in some publication of his first successful cases, his opinion of the impropriety of withholding any information from the public with regard to this very operation. I appeal, therefore, to him with the greater confidence. He stands pledged to the profession to give them an account of all that he has done on this subject. He has a perfect right, it is true, to give this information when and in what manner he pleases; but I do hope, when a person of Dr. Lee's character and standing in the profession is endeavouring to obtain complete statistical knowledge of such a very important subject, that both Dr. Bird and Mr. Walne will consider that the time has now arrived for them to make their experience available to the profession. We shall then have ample and authentic facts to reason on, and shall be able to settle the principle of the operation at once and for ever.

Dr. Frederic Bird remarked, that he could not but express his surprise at the omission of his cases in the table compiled by Dr. Lee; for although he had declined giving to Dr. Lee the details of his operations, yet he had sent to him their results, and had, by letter, informed him that he had extirpated ovarian tumour twelve times—eight times successfully, and four times without success. He had declined giving to Dr. Lee any details of his operations, because he objected to the manner in which Dr. Lee's tables had been arranged—an arrangement which was at least open to error, if it were not in itself erroneous. He preferred to publish his own cases; he was about doing so, and the result of his experience would be laid fully before the profession.

Dr. Lee replied, that it was true that Dr. F. Bird had furnished him with the bare results of the twelve cases in which he had operated; but this information was so meagre that he could not, in justice to the completeness of the other cases in his table, add them to that document. Dr. Bird had declined to give him any further information on the matter. Besides, no mention was made in the communication of Dr. Bird, of those cases in which an attempt had been made to remove the tumour without success. Under these circumstances, he had left out the cases of Dr. Bird altogether. Mr. Walne had also declined to furnish him with the particulars of his cases, and they had therefore been omitted also.

Dr. Bird having been asked in how many cases an attempt had been made by him to remove an ovarian tumour in which the operation could not be concluded, said, that he had frequently made small incisions into the abdominal parietes for the purpose of determining the presence or absence of peritoneal adhesions, where no other means of inquiry could determine the

question. Not unfrequently cases occurred, in which, from the large size of the tumour, or other causes, the ordinary means of examination was insufficient, and when the only means of completing the diagnosis was that of making a small incision—a practice which he believed to be often admissible, and not less safe—the fear of subsequent peritonitis could scarcely be entertained, inasmuch as the close adhesion of the ovarian tumour to the parietes, when such adhesions existed, prevented the peritoneal cavity from being exposed, and there was no danger of subsequent inflammation; whilst, if no adhesions existed, the tumour could be removed. He believed the practice to be, when necessary, safe—speaking quite at random as to numbers. At that moment, he was almost afraid to state any number of cases in which small incisions had been employed without subsequent danger—probably he might startle some gentleman by stating as many as forty or fifty, but of this number he was speaking quite at random, not having made any reference to his notes of cases,—certainly in no instance did any bad result ensue.

Mr. Curling inquired in how many cases patients had died after exploration.

Dr. F. Bird—In none.

Dr. Lee said, that in the table before the society, out of thirty-seven cases in which the tumour had been attempted to be removed without success, fourteen of the patients had died. This fact was amply sufficient to show that what was called " the exploration" of these tumours was by no means a harmless proceeding.

Mr. Cæsar Hawkins—I venture to rise once more, and to repeat the appeal which I before made to Dr. Bird, that his cases may be given to Dr. Lee, to be added to his table before its publication; and I feel assured that I am only expressing the wish of every member of this society, that every case in which the operation has been performed, or attempted to be performed in this country, may be communicated with the liberality which has characterised almost every one who has operated. Everything that has passed in this room shows still more strongly the necessity of this being completely done, in order that any legitimate deductions may be drawn from such a table. Dr. Bird has informed us, that besides the twelve cases in which he actually removed the ovary, of which eight were successful and four died, (not communicated, however, in time to Dr. Lee,) he has made incisions of an exploratory character in forty or fifty other cases, which he is unwilling to have considered as examples of the operation; not being quite certain of the number, we will call them only forty. Now, whatever Dr. Bird may think of it, I am quite sure that no other operator will consider it a trifle to make an incision into the abdomen of several inches in length; and all these cases ought, in common fairness, to be reckoned as cases of attempted ovariotomy. No doubt Dr. Bird has refused the operation in some cases, so that these exploratory openings must have been made, because they were not quite so clear to him; and in all these forty cases he was doubtless prepared, had he found the operation practicable, after this incision was made, to have gone on with them to the entire removal of the tumour. Observe then the result of adding these forty attempted removals to the thirty-seven recorded by Dr. Lee; we at once have no less than seventy-seven cases in which the operation could not be finished after it had been commenced—actually half of the entire number of operations which the table would then contain. Sir, before I came here to-night I made this extract of what Dr. Bird has himself said:—" Another and not less important source of fallacy arises from the fact, that a most reprehensible practice exists of suppressing the publication of unsuccessful

cases. Several such have occurred, the faithful relation of which might have shed much additional light on the operation, but are still carefully concealed from the profession." Of course, I have no intention of accusing Dr. Bird of doing this, and I may be wrong in calling these forty instances in which he opened the abdomen by the name of unsuccessful attempts to perform the operation of removing the ovary; but I have a right to think them such, unless all their details are given by him. He stands pledged to afford these details to the profession in the extract I have just read; and although, as I before said, he has perfect liberty to do this when he thinks right, I do trust he will satisfy himself, on further consideration, that he cannot do better than take the present opportunity of giving them to a gentleman of Dr. Lee's rank in the profession, for the scientific purposes of this society.

Mr. B. PHILLIPS said—I entirely concur with Mr. Hawkins in his reprehension of the practice which now so largely prevails, of publishing successful, and withholding unsuccessful cases—a practice which ought to be visited by the indignant reprobation of the profession. It is a suppression of the truth which every honest man would condemn, and unless there be any code of honour, or morals, which allow of medical men doing what other classes of society could not do without degradation, the practice will be scouted in this society. For many years the disposition to this practice has been growing, and it has attained to such a height that we are even at this moment unable to determine the results of most of the great operations of surgery, so as to guide us in the advice we should give to our patients. Ten or twelve years ago I tried to ascertain what was the mortality after amputation; I embodied my researches in a paper which was read before this society. It was referred in the usual course, and one of the referees was so satisfied that my results were wrong, that he advised the council not to publish it. This advice was followed, and the paper was not published. The years that have passed have served to show that the mortality is not as I said, twenty-three per cent., but nearer twenty-seven. If a faithful record of results had been kept, the referee, in that case, could not have fallen into such an error. No man is bound to publish his experience; but if he publish his successful experience, he is then morally bound to publish that which is not successful. He cannot honestly garble it, if the truth must be told; and the truth means the whole truth. What attached such an odium to M. Civiale's name some years ago, but that he was supposed to have told the truth in such a way as to represent an untruth? He had a large number of stone cases consigned to him for treatment by lithotrity. He stated that he had operated on 244 cases, and that 236 were cured. The whole truth was, that he had had recourse to sounding, and other manipulations, in 97 other cases, but he did not choose to complete the operation. Correctly stated, he should have said 341 cases, 236 cures. His reverses, then, should have been stated as one out of three, instead of one out of thirty. In what particular does the revelation of to-night differ from that? We are told of twelve operations, and eight successes; but nothing was voluntarily said of forty or fifty cases, in which the operation was commenced, and could not be proceeded with. For myself, I feel utterly unable to advise a patient to submit to the operation for the extirpation of an ovarian cyst. If I turn to one side, I am assured that the operation is little short of murder; if I turn to the other side, I am told it is comparatively harmless. Is it honest that medical men, having claims to respectability, should have left us in that plight, when they possessed the means for guiding our judgment? Many of the operations of surgery are performed in our hospitals, in the face of day, and the results may be registered. The ope-

ration of to-night has not often been performed in hospitals; it has been done in private houses, to which the public have no access. Is it not, then, doubly incumbent on those who have the means to remove the veil which may conceal the results of those cases? Judged, then, by the information laid before us to-night, we find that the abdomen has been laid open many times, when there was no tumour in it; that the operation has been performed, in this country, 71 times; and that 47 have recovered; and from Dr. F. Bird's statement, it is made evident, that so utterly valueless is the diagnosis, that he has commenced the operation—that is to say, that he has made an incision into the abdomen, "forty to fifty times," without being able to proceed with the operation. In given cases, in which the cyst was single, there was no adhesion, and the patient was healthy; the operation might, perhaps, be successfully performed, or at least it was the most likely of all cases to be successful: but it had been proved to-night that we had no means of determining the real condition of an ovarian tumour, and not even whether it were adherent or not, without the performance of an exploratory operation.

Mr. Cæsar Hawkins, on rising, said,—I feel that I ought to apologise for rising again, after I have already spoken twice; but I am tempted to do so from what Mr. Phillips has just said. He has spoken of cases of a single cyst in a healthy young woman, as being especially the case proper for this operation. Now, sir, I have quite made up my mind, of late, that these are especially the cases in which it ought not to be performed. I quite agree with my friend, Mr. Phillips, that such cases are the most likely to be successful, but I believe that ovariotomy is so dangerous an operation that we are not justified in resorting to it, and encountering so much risk, unless an urgent danger is to be avoided. I have heard some persons of great eminence speak of ovarian tumours generally, as a disease that often lasts for twenty or thirty years, with generally little hazard to life; I cannot myself subscribe to such an opinion, but believe, on the contrary, that it is commonly fatal in not many years, and, consequently, that in such cases the trial to remove the whole disease by operation, however dangerous, has been justifiable. I cannot but think, however, that the profession have not commonly made sufficient distinction between cases of simple serous cyst in the broad ligament of the uterus, and the cysts formed in the ovaria themselves by growth of the Graafian vesicles. In the latter only, as I think, is it, that there is such a constant tendency to form the thick, tenacious mucus, which is, I presume in reality, purulent secretion converted into mucus by alkali, constituting a great abscess. In this only is there much risk of secondary cysts forming a multilocular tumour, and an almost invariable tendency to increased rapidity of the filling of the sac, all of which lead to a fatal result in a given number of years, and are sufficient to justify a dangerous operation, which is not proper in cases of the sacs of nearly pure water developed in the other situation. To show the great variableness with which the fluid may be secreted in cases of the serous cyst of the broad ligament, I will venture to describe the several periods of tapping necessary in a case which I believe to be of this description, the patient being, however, still alive. A young woman, aged 17, began to enlarge in the year 1834; in August, 1837, three years afterwards, I tapped her, and removed ten pints of simple watery fluid; in February, 1838, nine pints of the same transparent liquid were drawn off, being six months after the first operation; in May, 1841, eight pints were removed, being three years and three months since the last time; in May, 1842, only one year afterwards, six pints; in October, 1844, eight pints, being no less than two years and five months between the

two operations. In February, 1846, ten pints were removed, at an interval of only one year and four months, scarcely more than half the former period. In February, 1849, she married, and was confined in November following, after which, she was near dying from a return of the dropsy, which had not been noticed till after her confinement, and may have been excited by the pregnancy; in February, 1850, however, she again had ten pints of the same clear fluid removed, being no less than four years from the last tapping, after which she again recovered her health. I am inclined to think, from other cases of serous cysts, that there is a greater chance of prolongation of life than in the more common tumours, whether single cysts or multilocular, which are situated in the ovarium itself, and hence I should not now think myself warranted in removing these cysts in the broad ligament, as I have hitherto done with regard to the more rapidly fatal tumours of the other description.

Dr. Tilt considered that the society was much indebted to Dr. Lee for the table before them, and which must be interesting to all. It was most desirable that all the evidence respecting ovariotomy that could be procured should be brought forward, in order that we might be able to form a definite opinion on this really most important operation. In his (Dr. Tilt's) opinion, Dr. Lee had started on the right principle in this inquiry, and had refused most properly to club all kinds of cases together. He had followed out the individual history of each case, and had classified them accordingly. This was the only way in which the cases could be made valuable in determining the risk of the operation. For instance, some of the cases of ovarian disease were of a very chronic character, whilst in others, the disease was so acute as to resemble peritonitis in a mild form. Now, it would be obvious, that to class these two forms of cases together might lead us to a most erroneous conclusion. In the chronic form of the disease, attacking patients late in life, it was, he believed, unjustifiable to operate; but in some cases, where the disease was more acute, and it occurred between the ages of eighteen and thirty, it might be justifiable. Dr. Atlee, of Philadelphia, had operated in thirty-six of such cases: of these, twelve died, and twenty-four recovered. Looking at the mortality in those cases where no operation was performed, and to the fact that life was very rarely prolonged beyond two or three years, it would at once be seen how important it was to arrive at right conclusions respecting the operation. The question, then, immediately suggested itself, as to which were the cases most favorable for operation. Under this point we must remain in doubt so long as fatal cases, and their histories, were withheld from publication.

Mr. B. Phillips requested permission to offer a few words in explanation, after the remarks which had fallen from Mr. Cæsar Hawkins. He (Mr. Phillips) did not wish to be understood, in his remarks, to mean the ordinary serous cyst, and its ordinary termination; but he would state that he had seen ovarian tumours removed on eleven occasions. In six of these cases the cysts contained serous fluid; and of the six patients he had every reason to believe that four got quite well. It was this fact which had induced him to say that he regarded the simple serous cyst as the most likely case in which an operation would prove successful.

Mr. Lawrence rose and said,—Mr. President, I did not attend the meeting of the society to give information, for I have no experience of ovariotomy; I have not performed it, and unless my view of the matter should be essentially altered, I never shall; nor have I seen it performed. I came, sir, to listen and to learn, and my expectations of information have not been disappointed. I have heard things strange and new, at the same time instructive.

From the interesting document presented to the society by Dr. Lee, for which he deserves the best thanks of the profession, the public, and more especially of females labouring under abdominal enlargements, it appears that in 37 out of 108 authenticated cases of operation collected by him, it was found, when the abdomen had been exposed, either that there was no diseased ovarium, or one so circumstanced as not to admit of removal. We cannot help believing that this announcement, however unexpected and startling, represents ovariotomy in too favorable a light. Dr. Lee's list is imperfect, confessedly so; it contains only the cases of which he has received authentic accounts. There is no reason for supposing that any successful operations have been omitted. We have generally, perhaps invariably, heard of them as soon as the citatrization of the wound had been completed. The same alacrity has not been observed in the communication of unsuccessful cases; and I am not aware that any one of the thirty-seven cases just alluded to has been published by the operator. We can hardly doubt, therefore, that if a correct list were drawn out of all the operations, the proportion of cases in which ovariotomy had been fatal would be increased, and that a considerable addition would be made to the thirty-seven instances in which the perilous proceeding of exposing the cavity of the abdomen had been resorted to unnecessarily. Dr. Lee's list, however, as it now stands, is quite sufficient to make us doubt the propriety of admitting ovariotomy into the catalogue of recognised and approved surgical operations. We are still in the dark on one point, which ought to be ascertained before we can determine the true value of the proceeding; that is, its influence in prolonging life. Our excellent colleague may probably have acquired information on this point, in prosecuting the researches of which he has now laid the result before the society, and he could probably render them still more complete by learning the subsequent history of the cases in which the operation had been successful, by ascertaining the kind of health enjoyed, and the duration of life after recovery. The chances offered by the operation would be expressed by the average duration of life in those who have undergone it, if that can be ascertained, reduced in amount by a deduction, and that not inconsiderable, on account of those in whom the operation ends fatally, whether completed by removal of the ovary or not. The result thus obtained must be compared with the probable duration of life in those patients who receive such relief as can be afforded by the other resources of art. Many years ago I saw a female from the north of England who had undergone ovariotomy, as it was reported, successfully, not very long before the time of my seeing her, the operator being Mr. Lizars. It was performed when what was then called the major incision was in vogue—that is, a cut through the parietes, from the ensiform cartilage to the pubes, such as we make to expose the abdomen for examination after death. There was a sound cicatrix on the person of this female, indicating that an incision of that description had been made. The pelvic region was occupied by a large solid mass of disease. The comparison I have now suggested must be made between two sets of cases similar in their nature. Ovariotomy is not performed indiscriminately, but in selected instances. The cases chosen for operation are exactly those in which it is the least necessary, the danger to life being remote, and the patients sometimes living for years with only an occasional interruption of health and comfort. Mr. Hawkins has pointed out the important distinction between the simple serous cysts developed in the broad ligament, with their contents of watery consistence, and the more serious disease of the ovary itself, with its multiplied cysts, and their thick, variously coloured secretions. Two instances of the former kind were under my ob-

servation for many years, and I believe that both individuals are still living, although it is long since I have seen them. Elizabeth L——, a rather tall and well-made woman, who had always enjoyed good health, found a swelling in the lower part of the abdomen soon after the birth of her last child, in 1819. It gradually increased for about three years, hardly troubling her except by its bulk, which, however, had become so considerable in 1823, that relief was absolutely necessary, and I drew off, in St. Bartholomew's Hospital, a pailful and a half of fluid, of watery consistence and slight whitish opacity. She soon recovered her health and strength, feeling as capable of exertion as at any period of her life, and for nearly two years she thought herself perfectly recovered. She increased in size at the end of this time, and was tapped again with the same complete relief as before. From this time to 1829 she was tapped three times, and did not swell again after the last date. I saw her in October, 1831, in perfect health, and without any abdominal enlargement. She had sometimes experienced an uneasy sense of fulness, which was relieved by purgatives. In the preceding winter she had suffered three or four attacks of spasmodic breathing. Since their cessation she had been quite well, and equal to all the exertions which her situation in life required. She had drank nothing but water. I saw her again in June 1842. She had lived for the preceding two years at Charlton, in Kent, enjoying excellent health, and free from every trace of her former disease.—I tapped a lady for ovarian dropsy, and let out a few pints of clear fluid. She regained her former size, and considered herself quite free from disease. In four or five years she increased in bulk, and the operation was repeated, a smaller quantity of similar fluid being drawn off. I saw her again in 1842, sixteen or seventeen years after the first operation. She had enjoyed uninterrupted health since the last tapping, and nothing abnormal could be detected in the abdomen on the most careful examination.—A statement more remarkable even than those in Dr. Lee's communication has come out in the course of this evening's discussion, having been accidentally elicited, rather than mentioned intentionally. A gentleman, who spoke from the middle of the room, has informed us that he had performed ovariotomy twelve times, and had intended to communicate the particulars to Dr. Lee. This list of operations, however, is of little importance, in comparison with the other matter mentioned subsequently, —viz., that in between forty and fifty cases, as I understood him, he had made an opening into the abdomen, in order to ascertain, in cases of supposed ovarian disease, whether the state of things was fit for operation; and having found that it was not, he closed the opening again. He added that not one of these persons had suffered from the proceeding. If we had not heard this report from the operator himself, we might have been excused for feeling some hesitation in giving it credit. To determine whether a diseased ovary, or other abdominal tumour, admits of excision, it must be necessary to examine the situation and connexions of the part with the hand, which would require a somewhat large cut through the abdominal parietes. To find that this could be done with impunity in between forty and fifty instances is what we should have little expected. As similar good luck could hardly be expected to attend other patients, I would caution the younger part of the company against imitating the boldness of this operator. The naked statement heard to-night does not enable us to appreciate the affair satisfactorily; we must wait for that promised publication of full details which is necessary to substantiate so novel a report. In the meantime, the simple statement, coupled with the thirty-seven cases of Dr. Lee, affords evidence of difficulties in diagnosis that must be perplexing to the ovariotomist.

14. *Ovarian Dropsy—Cure of, by the formation of an artificial oviduct.*—This is a project of Mr. Brown, whose writings on the subject of ovarian disease we have before had occasion to notice. In his paper read before the Medical Society of London,* he stated that he did not bring forward this operation as a substitute for treatment by pressure, but as a means to be resorted to where pressure from any cause had proved unavailing, or could not be applied. Indeed, he was more firmly convinced than ever of the curative efficiency of pressure. The operation he now proposed he would designate but a modification of a previous one proposed by Mr. Bainbridge of Liverpool, and to that gentleman he would accord the merit of having first seized upon the guiding principle—that of setting up adhesions between the sac and abdominal parietes, and leaving the sac to exhaust and destroy itself, by its discharge through an artificial opening. This principle, observed Mr. Brown, has been indicated to us by Nature, in the cures of ovarian dropsy occasionally witnessed by the accidental formation of a fistulous opening into the sac. The author then proceeded to describe the modified operation he recommended. This operation consists in making an oblique lateral incision in the middle third of the oblique line, extending from the umbilicus to the anterior superior iliac spine, reaching at first to the peritonæum; then puncturing and emptying the cyst by a trocar and canula; and the peritonæum being reflected, to subsequently stitch the cyst to the aponeurotic tendon of the external oblique muscle; and this being done, to divide the cyst between the line of the sutures; and, finally, in keeping up the communication between the interior of the cyst and the exterior, allowing the free and constant escape of all secretions produced within it. This operation of Mr. Brown differs from that practised by Mr. Bainbridge, in that the fistulous opening is formed in the side, and not in the middle line, whereby the discharge from the wound is facilitated, and the greatest comfort to the patient ensured. In illustration of the practicability and advantages of the operation, Mr. Brown proceeded to narrate the history of three cases in which he had carried it into practice. In the first case, which was one of long standing, tapping had been performed several times. It afforded her so little relief, on the last occasion, and her health was so rapidly giving way, that it was determined to perform the operation under discussion. The patient went on well for five days, but then became subject to fainting fits and much dyspnœa. Dr. Sibson considered that the patient suffered from disease of the heart. She died within a month of the operation. After death a considerable amount of visceral fluid was detected. The ovarian cyst was adherent all round the incision. It communicated at its posterior surface, by an opening of some duration, with a smaller cyst, and by this with several others. The contents of these cysts differed in their nature. In commenting on this case, Mr. Brown said he regarded the fatal result to be mainly attributable to the amount of organic disease present, and that it did not militate against the value of the operation. The second case was one in which tapping afforded so temporary a relief that this operation was performed; her general health, however, and weakness, holding out but little hopes of success. The walls of the cyst and peritonæum were found adherent, and an apparently solid elastic tumour occupied the interior of the cyst. All went on well for the first fortnight; she then caught cold, and suffered considerably. This was overcome by remedies; but the discharge diminished, and this was found to arise from adhesion between the walls of the cyst and the tumour. The effect was the division of the cyst into

* Reported in Lancet, Nov. 1850.

two compartments, from one of which no fluid was evacuated; the evil was removed by breaking down the adhesion, and placing in the orifice a pledget of lint. The operation was performed in April. She went on well without any remarkable symptoms until July, when the large cyst, in a putrescent state, escaped through the orifice. At the end of August vomiting of a persistent character set in; she was seized with paralysis of the left side, and died comatose. An autopsy being made, a cyst, capable of holding an orange, was found in the right ovary, communicating externally by a healthy fistulous canal. The wall of this cyst was soft and disorganised posteriorly, and there was a laceration, apparently made during the examination, through which some of the pus it contained had escaped into the recto- and vesico-vaginal pouches of the peritonæum; the latter presented no appearance of inflammation. From three to four small cysts, varying in size from that of a currant to that of a grape, existed just within the line of the incision. The kidneys were soft, large, and pale, the liver remarkably yellow, and the brain soft and unusually pale. In this case, as in the last, Mr. Brown attributed the fatal result to the impaired health of the patient, though she would no doubt have died ultimately of the suppurative discharge. The third case was one of multilocular tumour, very large and adherent. The operation was performed. The contents of the cyst were highly albuminous. Soon afterwards inflammation in the cyst was set up. This was subdued; but the patient sank from exhaustion, the discharge having become offensive. Extensive adhesions anteriorly were found after death. The external wound was healthy. Mr. Brown remarked, that though this could not be called a successful case, yet the operation itself was satisfactory, and could not be assigned as the cause of death—an event which, in all probability, would not have been long postponed had no such attempt to relieve the patient been made. The last part of Mr. Brown's communication was occupied by the enunciation of some practical deductions—viz., 1. That some cases are curable by pressure, according to the plan of the author, as laid down in previous papers published in the 'Lancet,' to which he would also refer for a description of the sort of cases to be so benefited, and which, speaking generally, are those in which the cyst is unilocular, without adhesions, its contents clear and not albuminous, and where the condition of the patient affords time for the requisite perseverence, no counter indications existing. 2. That some multilocular cases, and such as present adhesions of the cyst, are to be materially relieved and retarded by pressure. For illustrative cases he would refer to his papers in the 'Lancet.' 3. That in cases where pressure has failed, or is contraindicated—whether the disease be unilocular or multilocular, but without adhesions, extirpation affords a means of cure. But in all such cases, before this severe operation is resorted to, time and the condition of the patient not opposing, pressure should be first tried. 4. That where the extent and character of the adhesions forbid extirpation and where pressure is contraindicated, or has been practised and failed—in such cases the lateral operation above described presents a means of cure, having the greatest promise of success. 5. That this lateral operation may be performed with facility, and is attended with little danger, no case of peritonitis having occurred to the author in the many instances in which he has had occasion to cut down upon and divide the peritonæum in the operation in question, and also in others.

—At a subsequent meeting of the society, Mr. Brown exhibited a preparation taken from a patient on whom this operation had been performed. The case was that of a female who had died of paralysis five months after the operation. The preparation showed that perfect adhesions had been esta-

blished between the multilocular cysts and the abdominal parietes, the largest having been extruded, in a decomposed state, six weeks before death. Mr. Brown remarked that this preparation demonstrated the feasibility of the operation, and quoted somewhat analogous cases by incision, in which perfect success had followed, in Germany and America.*

§ III. *Pregnancy—Labour—the Puerperal State.*

15. *Pregnancy—Loss of Speech.*—Mr. Hewson relates the case of a female who, in the latter weeks of pregnancy, was seized with convulsions, followed by loss of speech. After delivery she was able to articulate with her usual facility.†

16. *New Theory of the Abdominal Souffle in Pregnancy.*—In an essay on this subject, after noticing the existence of two vascular sounds, one acknowledged to be that of the fœtal heart, the other supposed to be produced in the placental vessels, and specifying certain peculiarities of intonation and site to which the latter is subject, M. Cazeaux announces his accordance with the opinion of M. Depaul, that the placenta is in no way concerned in its causation; in fact, he observes, the sound is in every way analogous to that produced in chlorosis, and like it, depends upon analogous changes in the blood of pregnant females. (This idea was propounded by the author in a former number of the 'Archives Générales.') In order, however, to enunciate this theory more distinctly, he proceeds to criticise the two prevalent opinions, one of which is that the sound is produced externally to the uterus; the other, that it is in the uterus.

The partisans of the first opinion, from the fact that any tumour of a given size will occasionally, by its pressure on the aorta, give rise to a bruit similar to that of pregnancy, and, regarding the uterus as a tumour, rest their convictions upon the following considerations:—1. That this bruit does not appear until the uterus has acquired a certain size, enabling it to compress the iliac vessels. 2. That it is generally heard at the lower part of the abdomen. 3. Because, however distinct the sound may be in the supine position, it disappears entirely if the woman be placed on the hands and knees, and the pressure be thus removed from the blood-vessels.

The supporters of the placental origin of the murmur differ somewhat among themselves as to the exact system of vessels in which it takes its rise, but all these are equally disregarded by M. Cazeaux in favour of his own views, which are, that the sound is produced in the large abdominal vessels lying behind the uterus, especially the iliac, but that compression of these alone, without the coexistence of the particular constitution of the blood, would not give rise to it. His explanation of this state, as also that of chlorosis, is not that it consists in a deficiency of globules, but as a serous polyhæmia, as advanced by M. Beau.‡

17. *Extra-uterine Pregnancy.*—We have several instances of this accident to record. The first we shall notice is a case of tubal pregnancy by Dr. Hirlbeck.

The subject, a married woman, was well, up to her attack, which was sudden, with violent pain in the hypogastrium, accompanied by collapse. She also vomited, and was restless and tossing about the bed. Morphine was given. The patient died fifty-two hours after.

* Lancet, Dec. 7, 1850. † Ib., July 27, 1850. ‡ Archives Générales, 1850.

Post-mortem examination.—On cutting into the abdomen a large quantity of blood was found. The coagula and fluid blood, amounting to three quarts, being removed, the Fallopian tubes were examined, and a small rent found in the Fallopian tube near the uterus, of a size so small as to be barely capable of admitting a crow's quill. The uterus and its appendages were removed, and on dissection presented the following appearances :—

The uterus was two or three times its natural size. The os tincæ patulous, its parietes much thickened, and the internal cavity, of twice its natural size, was coated by a reddish exudation of some consistence, easily separated with the handle of the scalpel. One inch from the corner of the uterus, in the left Fallopian tube, was a tumour as large as a pigeon's egg, and in its posterior inferior part the small rent through which her life and blood had ebbed away. On incising the parietes of the tube carefully, coagulated blood was found surrounding a transparent serous membrane, eight to ten lines in length, filled with limpid serum, in which floated a fœtus five lines long, attached by an umbilical cord, with rudiments of arms and legs beginning to appear, and a slight caudal projection of the coccyx. The ovaries were of full size, presenting several depressions; the right ovary contained one corpus senteum, the left two; the three presenting all the characteristic appearances; in one of them there was a small deep-seated cavity, evidently caused by an ovisac not completely filled up, showing the appearance of a corpus luteum having not completely undergone all its changes. At the lower posterior part of the left ovary, corresponding to the side in which the fœtus was found, on extending the incision, a beautiful display of a very recent corpus lutcum in process of formation presented itself to view. A cavity of six or seven lines, with a yellow membrane, to which, at its upper extremity, a clot of blood three or four lines in length, filling the ovisac about one fifth, was adherent, organised, but still preserving its character of blood. The rest of the body was in a healthy condition.*

—A second case, published by Dr. Marshall Hughes, is that of a female æt. 26. The catamenia had ceased five months when she observed a swelling in the right inguinal region, which gradually increased in size. The breasts at the same time began to enlarge, and the arcola became darker. In this case extra-uterine pregnancy was diagnosed during life. The termination of the case was, as usual, by rupture and hæmorrhage.

After death the abdomen was seen to contain a large quantity of bloody serum and coagulated lymph; on closer examination a cyst was found attached to the left uterine appendages, which enclosed a fœtus of five months' development.†

—Another instance, in most respects similar to the first, is reported by Dr. Barclay as occurring in St. George's Hospital.‡ Some interesting remarks are appended as to the probability of arriving at a correct diagnosis during life in these cases with reference to an operation.

—The last case we shall notice is one by Dr. Denny. In this instance there was a fictitious labour, after which a state of marasmus ensued, which proved fatal. On examination after death a cyst was discovered containing the remains of a mature fœtus partially converted into adipocere.§

18. *Superfœtation.*—In a very comprehensive memoir, published in the

* Charleston Medical and Surgical Journal, May, 1850.

† Medical Gazette, Sept. 27.

‡ Ib. Sept. 13; and Lancet, Sept. 14.

§ American Journal of the Medical Sciences, July.

'London Journal of Medicine,'* Dr. Alexander Henry adopts the following classification of cases:

1. Those in which a dead twin has been retained in the uterus.
2. Those in which children have been born either—

(*a.*) Both at the same time, but of different degrees of development; the smaller fœtus being either alive or very recently dead; or—

(*b.*) Where the less perfect fœtus has been retained till it became mature.

3. Cases in which children of different colours have been born.
4. Cases in which a double uterus has been found to exist.
5. Cases occurring during extra-uterine gestation.

The first class of cases the author regards as equivocal examples of superfœtation. The second class he considers more worthy of attention, as it has mainly served to give rise to the difference of opinion which exists as to the possibility of superfœtation. Each class is copiously illustrated by cases, but the author does not appear to be able to come to a satisfactory conclusion respecting the various phenomena connected with superfœtation. Difficulty is especially experienced in the diagnosis of true superfœtation, and those cases in which a fœtus has been arrested in its development. As to the possibility of the occurrence, he does not entertain a doubt in single as well as double uterus.

19. *Labour, Statistics of.*—An elaborate statistical Report of the Boston Lying-in Hospital has been drawn up by Dr. Storer.†

20. *Labour with complete Prolapsus Uteri.*—Dr. Samuel Tyler, (U.S.), attended a female, in whom the uterus was entirely prolapsed, containing a five months' fœtus. It was found impossible to return it until after delivery, subsequent to which it was readily replaced. Similar cases will be found in our former volumes.‡

21. *Labour obstructed by projecting Coccyx.*—A remarkable case is related by Dr. Summers, of projecting os coccygis, which had been the cause of death to the child in three successive labours. In the last the cranium presented a deep gash, as if cut by a sharp instrument. On examination the os coccygis was felt projecting in the form of a hook-like process. The patient was advised to avoid the risk of pregnancy in future, but failing to abide by his recommendation, Dr. Summers was summoned in due time to her fourth confinement. Recollecting what had occurred on former occasions, he endeavoured to straighten the projecting bone, but in doing so he broke it. A living child was born. The same proceeding was necessary in two subsequent labours.§

22. *Back Presentation at Full Term.*—Presentations of the back or loins are forms of preternatural labour so rarely met with, that the following case by Mr. Kesteven,‖ seems worth recording:

"Mrs. D——, æt. about 30, at the expiration of the full period of her fifth pregnancy, was taken in labour at 5 a.m. on May 28th, 1850. I saw her between 6 and 7 o'clock; the os uteri was fully dilated, the pains strong, and occurring regularly. The membranes were entire. I could not then reach the presentation sufficiently to form an exact opinion of its nature. The pains

* Dec. 1849.
† American Journal of Medical Science, Oct.
‡ New York Journal of Medicine, July, 1850.
§ Provincial Medical and Surgical Journal.
‖ Medical Gazette, p. 414, 1850.

continued regular and strong. At 11 a.m. I could deteet a broad flat surfaee about the brim, which elearly was neither head nor breech. The mother was becoming much fatigued, and no further progress made in the deseent of the child, still above the brim of the pelvis. The membranes gave way at 1 p.m. I could then bring my finger in eontact with a greater surfaee of the presentation: I felt what I supposed to be a shoulder, and considered that the occiput was resting on the pubis. I then considered it to be my duty to turn, without waiting for assistanee, as the pains had been strong for between seven and eight hours, and the patient's strength was becoming exhausted, and there appeared no chance of the position of the child being changed by the natural action of the uterus. On passing my hand into the uterus, I found that what I had supposed to be the shoulders was the erest of the ileum; and that my hand, in passing to the fundus of the uterus, traversed the length of the baek, and came in contact with the vertex, situated posteriorly and superiorly in the fundus of the uterus. I then passed my hand (the right hand) over the body of the fœtus anteriorly, and, fixing my forefinger in the groin, brought down one leg into the vagina, at the same time pressing the body of the child upwards into the eavity of the uterus, and delivered footling, bringing down one extremity only. The child was apparently stillborn, but was resuscitated."

23. *Hæmorrhage, new Plug for.*—Among our extracts will be found a notice of an instrument devised by M. Gariel, which does not appear to differ materially from that spoken of by M. Diday (vol. xi. p. 270). It would seem, however, that both had beeu anticipated by Dr. Hamilton, of Falkirk, and that his plug had eertain advantages over the invention of the French surgeon.*

24. *Puerperal Fever and Surgical Fever, analogies of.*—Dr. Simpson has made the analogies of childbed and traumatic fever the subject of an essay, which, like all the writings of the Edinburgh Professor of Midwifery, is replete with instruction. He studies these analogies under four aspeets—1. In the anatomical condition, and constitutional peculiarities of the subjeets of these fevers. 2. In the pathological nature of the fever. 3. In the morbid lesions found after death. 4. In the symptoms which accompany each affection.

He shews, in the first place, that the anatomical conditions of the puerperal patients, and the subject of an operation are in many respects the same. Both have an open wound, with exposed vascular orifiee; both are liable at the first to present symptoms of shoek or collapse; both have generally a limited febrile reaction—the traumatic fever in the one ease, the milk fever in the other. Both the external, surgical, and the internal obstetrical wound are liable to deviate from the standard mode of separation; may have altered secretions, excessive inflammation, or phlebitie suppuration. In both air may enter the veins, both may give rise to delirium, tetanus, and other nervous complications.

In pointing out the analogies of puerperal and surgical fever in their essenee, Dr. Simpson reviews the various opinions of the nature of puerperal fever which have prevailed from time to time; stating his own to be in accordance with that generally received, viz. that it is due to a vitiation of the blood, which he also shows to be the cause of the fever which too often follows severe operations. Both in their phenomena and results correspond with other "disseminated inflammations," as they are termed by Chomel, such as scarlatina, erysipelas, &c.

* Edinburgh Monthly Journal, Nov. 1850.

He next follows the analogies of the two diseases, by exhibiting a tabular record of their marked appearances, from which it is seen that both leave traces of acute internal inflammation, which are seldom limited to one organ or texture, but are distributed over several simultaneously. It is also observed, that the internal viscera, which are the principal seats of the inflammation, are often distant from the original wound or lesion. The great resemblance which exists in the symptoms is next pointed out.*

The author concludes his essay with some remarks on the contagious nature of these fevers, and on the precautions which should be taken to prevent or limit their outbreak.

25. *Operative Midwifery. Turning by External Manipulation.*—Professor Martin, of Jena, has recently contributed a memoir on this subject, founded on thirty-four cases, seven of which occurred to himself. He gives it as his opinion, that an exact knowledge of the position of the child must be obtained before the attempt is made. It is only prior to, or immediately after, the discharge of the waters, that the fœtus will be found possessed of sufficient mobility. As long as the os is undilated, and the pains irregular, the patient is kept on the side upon which the part desired to be forced into the pelvis is placed, so as to afford a moderate support. When, however, the os has become dilated, and the waters are expected to be discharged, she is laid (the bladder and rectum having been emptied) on her back, the lower part of her body being somewhat raised. With one hand the operator presses the part of the fœtus which lies nearest the os, whether it be the head or breech, downwards, while with the other he presses the rest of the body upwards. This simultaneous pressure is begun during the interval of a pain, and continued during its commencement, while, during the height of this, the uterus is firmly supported on every side. After a short pause the manipulation is again recommenced, and, if the operator's hands become tired, an assistant may, during the intervals of the pains, support the belly on each side, whereby the ovoid configuration of the uterus is better secured, and the child more easily brought into a proper position. If the pains are long absent, she may often be advantageously placed on her side, supporting the projecting part by the hand or a firm cushion. Especially is this position advantageous if manipulation has already somewhat improved the position, and it should, if possible, be continued after the head has entered the pelvis. For the purpose of retaining the head within the pelvis, when the improvement of the position is not durable, the rupture of the membranes, after the head or buttocks have been brought over the os, is a very efficacious procedure.

Among the rules to be observed, there is that of never employing a cold hand, for not only is it disagreeable, but it may give rise to spasmodic action and the premature discharge of the waters. The pressure, too, should be moderate and continuous, and applied sometimes in a diffused manner with the flat hand, and at others by particular fingers, to various parts of the child. It must be always a double and simultaneous pressure, exerted equally towards the fundus and upon the part we are seeking to engage in the pelvis. A change in the position of the woman is often an important aid to the manipulation.

There are certain conditions requisite for rendering the operation of external turning an eligible one:—1. Absence of reasons for a rapid termination of labour, as hæmorrhage, presentation of funis. 2. Mobility of the child. Generally this ceases after a discharge of the waters. If, however, few pains

* Edinburgh Monthly Journal, Nov. 1850.

have occurred, the presenting part has not become far forced down, or the uterus firmly contracted around it, a trial is justifiable. 3. Absence of great sensibility of the womb or abdomen. 4. Sufficient capacity of pelvis. A moderate degree of contraction is no contra-indication. 5. A normal activity of pains has been set down as a condition. It certainly is a very favorable one, but it is rare in faulty presentation, and not an essential one for external turning. Spasmodic or crampy pains, which render the first two stages tedious, if due to cold, are best treated by mustard poultices and small doses of ipecacuanha. The very rectification of the position sometimes imparts a normal activity to the pains. External turning is rarely successful when the defective pains are dependent upon a rheumatico-catarrhal affection of the lower portion of the uterus giving rise to a softened state and premature rupture of the membranes. 6. The child being alive, is a subordinate condition; for although in the case of its death, internal turning may usually be advised, yet we very frequently cannot be certain of this.*

26. *Cæsarian operation.*—In addition to the recent instances of this operation (reported in our former volumes), we give the following case, in which it was performed by Mr. SANNEMAN under unusual circumstances:—

The patient, Mrs. Y——, æt. 42, was a woman of diminutive stature and antiquated features, the forehead, temples, and cheeks being so furrowed as to resemble those of a person seventy years of age. She had given birth to six children, the last having been delivered by craniotomy seven years ago. Eleven years since, whilst attempting to sit on a wooden stool, which suddenly slipped from under her, she fell on a sharp-edged surface, and struck her spine. After this time, symptoms of malacosteon, with contortion of the spine, supervened, and have since gradually progressed; diminution of stature had also taken place.

The general health had been depraved by dyspeptic symptoms; loss of appetite, eructations of flatus, with a frequent flow of acid saliva, were present; the urine also was so loaded with phosphates as to deposit a copious earthy sediment. Pulse 150, small, weak, and scarcely perceptible.

When visited (Jan. 11, 1848), in addition to the symptoms mentioned above, she had had several slight epileptic convulsions, and had been suffering severely from chronic bronchitis; she was at this time in the seventh month of pregnancy. On examination *per vaginam*, the pelvis was found greatly deformed, the acetabula being pushed backwards and inwards towards the sacrum, and the ossa pubis forming a projecting angle at the symphysis. In consequence of this deformity, the uterus was anteverted to the greatest possible degree.

Mr. Sanneman was called to her at two o'clock a.m., Feb. 28, and found that moderate labour-pains had commenced; the uterine tumour formed a large pendulous body projecting over the symphysis pubis, and its lower border occupying the space between the thighs; it could be elevated or moved to either side with ease. The abdominal parietes were so much attenuated that the child felt to the hand as if extra-uterine. On examination *per vaginam*, the tip of the finger could just reach a soft spongy mass, which appeared to be placenta, and there was considerable hæmorrhage during the pains. The antero-posterior diameter of the pelvis appeared to be about two inches; but from the displacement of the acetabula, the capacity of the pelvis generally, and the dimensions of the other diameters, were so diminished as to preclude the possibility of delivery by other means than the Cæsarian section,

* Froriep's Notizen, and British and Foreign Medico-Chirurgical Review.

which, after a consultation with Messrs. Bennett and Barratt, was accordingly performed twelve hours after the accession of pains.

The first incision, five inches in length, was made over the most projecting part of the tumour, considerably to the right of the mesian line, and from the excessive attenuation of the abdominal walls, it at once exposed the uterus. The next incision divided the uterine parietes; the child and secundines (the latter presenting at the os uteri with the shoulder of the child) were immediately extracted. The uterus contracted rapidly and firmly; the edges of the wound were brought together by interrupted sutures and adhesive strapping, and a bandage applied. The child was dead. The operation did not occupy more than two minutes, and not two ounces of blood were lost; the patient bore the proceeding with the greatest fortitude. For twelve hours afterwards she had not a bad symptom; full doses of opium were administered. She was, however, seized with a severe epileptic attack, and this was twice repeated before death, which occurred, apparently from exhaustion, at two o'clock on the day following. She thus survived the operation twenty-three hours.

Autopsy, March 1, 1848.—The uterus was found firmly contracted, of the size of a cricket-ball, and containing a coagulum. The part where the incision was made was in contact with the rectum. On measurement we found the diameters of the pelvis as follows:—The antero-posterior scarcely two inches, the transverse three inches, the acetabula projecting upwards and inwards to the sacrum, thereby lessening very considerably the oblique diameter. The other viscera appeared pretty healthy.

When the labour set in, Mr. Sanneman was in hope that craniotomy might be attempted, and if found impracticable, as a last resource, he determined to perform the Cæsarian section; but when the placenta was found presenting, and the hæmorrhage urgent, he decided that the nature of the pelvic distortion, and the anomalous situation of the uterus, left him no option.*

§ IV. *Diseases of Children.*

We have received two small books on the subject of Infantile Disease, which we proceed to notice. The first is an essay on the "*Management of Infancy*," by Charles Hogg, Esq., consisting of seven chapters, and made up of the ordinary common-places on diet, bathing, and physicking of little children. The professional man will be disappointed by its perusal, as it is intended for non-professional readers, and in public estimation we should imagine it will not supersede the far better works of Combe and Dr. Bull.

—The treatise on "*Hydrocephalus*,"† by W. Weedon Cooke, may be considered as a useful monograph, its only fault being a rare one, that of its brevity.

Mr. Cooke's object in publishing, is to call attention to the importance of distinguishing between *irritation* and *inflammation* of the brain of children, as well as to show that when the pathology of the disease, erroneously called hydrocephalus, is properly understood, its treatment is not so hopeless as is considered.

* Lancet, July 13, 1850.

† Hydrocephalus Re-considered, and its Relations to Inflammation and Irritation of the Brain Defined, &c., by J. Weedon Cooke, M.R.C.S.

The first three chapters may be considered as introductory to the main subject of the book, consisting of general remarks on the physical condition of the brain in infancy, and on the pathological characters of inflammation and irritation. The impropriety of the term "Hydrocephalus," applied as it is to all forms of cerebral disease in children, is pointed out in the fourth chapter. In the fifth chapter we have the description of acute cerebritis, which the author maintains to be a frequent disease, but which we must, in common with generally received opinions, pronounce to be rare. Under the term "Cerebral Irritation," the author includes what is otherwise termed tubercular meningitis, chronic hydrocephalus, erethism, and hydrencephaloid disease, &c. His treatment is on the sustaining plan, with iodine and chlorate of potash, and his success is stated to be far beyond that generally experienced. The book concludes with the details of numerous cases.

The author has done much in criticising the too common habit in practice of confounding all cases of cerebral disease in infancy under one term, Hydrocephalus, which, from the idea of high action connected with it, commonly leads to an injuriously active treatment; but we must still think that he has not gone far enough, more especially as regards precision in defining the pathological variations which may occur with symptoms which may be properly enough denominated those of irritation. For instance, he does not allude to what (by Marshall Hall) has been termed Hydrencephaloid disease, though from his success, we believe that he has often treated it under the idea that he has got a case of tubercular meningitis. In fact, under the term cerebral irritation, should be classed two pathological conditions, one the Hydrencephaloid disease, which may be likened to delirium tremens in the adult, and in a state of simple nervous exhaustion, readily curable, and that low form of disorganization connected with the deposit of tubercular masses in the cerebral membranes, which is altogether a more serious malady, and which, with deference to Mr. Cooke, is not to be cured so readily as he would have us suppose. We can only explain his alleged success by the supposition that, as would be the case in London, he has met with the former class of cases arising from insufficient food, diarrhœa and dentition, and that he has confounded them with the more serious affection.

27. *Chronic Hydrocephalus.*—Dr. Battersby has contributed an essay on the varieties of chronic hydrocephalus, which is remarkable for its great biblical research. The author's object appears to be to point out that the success of the operation for tapping the cranium is not so great as has been represented.*

28. *Intra-uterine Inflammation of Serous Membranes.*—Mr. Kesteven has placed on record the case of an infant which died ten days after birth, with anomalous symptoms, and which, after death, was found to exhibit the evidences of acute inflammation of the arachnoid, pleura, and lungs. He supposes these appearances to have resulted from inflammatory action set up during intra-uterine life.†

29. *Trismus Nascentum.*—A case of this disease, in which the body was inspected after death, is reported by Dr. Imlach.‡ The child was attacked

* Observations on Chronic Hydrocephalus, Acquired, Sanguineous, and Congenital, &c., by Francis Battersby, M.D., &c. (Reprint.)

† Medical Gazette, July 26, 1850.

‡ Edinburgh Medical and Surgical Journal, Aug. 1850.

on the sixth day, and was treated by chloroform. The chief morbid appearances were referable to the umbilicus, round which the skin was in a state of gangrene. There was no peritonitis, but the umbilical vein was filled with a coagulum; pus was found in the umbilical artery; the head and spine were not examined, and therefore in its most important particulars the case is worthless. Had Dr. Imlach appreciated the observations of Dr. Sims (see 'Abstract,' IV, 334; VIII, 242) on the pathology of the disease, he would have made the inspection of the cranium a point of special importance.

IV.

LECTURES ON INFLAMMATION,

Delivered in the Theatre of the Royal College of Surgeons of England,

BY JAMES PAGET, ESQ., F.R.C.S.,

PROFESSOR OF ANATOMY AND SURGERY TO THE COLLEGE.

LECTURE I.

Inflammation to be studied as an altered mode of nutrition in a part—Description of the inflammatory state as affecting the several parts chiefly engaged in the process of nutrition—namely, 1st, the Blood-vessels: their enlargement and fulness, producing redness and swelling: their change of shape, and aneurismal dilatations—2d, the Blood; its mode of movement, especially as observable in the wings of bats, after injury and the application of stimuli; its partial stagnation; its apparent changes; crowding of its red corpuscles; assumed accumulation of its white corpuscles; general effects of the changes of the retarded or stagnant blood—3d, the Nerves; their state, as indicated by pain, and disturbance of the act of nutrition; transference of this state to other nerves, generating certain forms of sympathetic inflammation—4th, the proper elements of the inflamed part; their influence in determining the phenomena of inflammation; their defective nutrition during the process.

Mr. President and Gentlemen,—In pursuance of the plan which I have followed in former years, of endeavouring to illustrate the successive series of specimens in the Pathological Museum, I come to the subject of Inflammation. Considering the difficulty of the questions to be discussed, I might gladly have avoided them; but the remembrance of the indulgent attention I have received in former years, makes me bold to attempt even this subject also; and the more readily, because, certainly, in the whole range of pathological study, none can be compared with it in either interest or importance. It is no more than the truth which Mr. Travers has well expressed in his work on the 'Physiology of Inflammation and the Healing Process'—"that a knowledge of the phenomena of inflammation, the laws by which it is governed in its course, and the relations which its several processes bear to each other, is the keystone to medical and surgical science."

I shall not attempt to define inflammation in any set terms; for as yet we are not, I think, in a position to do this. Just definitions cannot be made in any science till some of its broad and very sure principles have been established. Such principles we cannot boast to have yet attained in the study of pathology; and the attempts at precise definitions that have been made hitherto, seem to have led only to confusion, or to false and narrow views of truth. Besides, to define inflammation is the less necessary, because, practically, we

all know sufficiently well what the term implies; we know the signs of the presence of the disease in all its chief forms; and, when we watch these signs in any external part, we see them so often followed by peculiar changes in the part, that we are justified in recognising the changes as effects of inflammation, and in believing that wherever we find them, the similar or corresponding signs of inflammation have preceded them.

But the very difficulty of exactly defining the process of inflammation may be our guide to the most hopeful method of investigating it. When we see such gradual transitions, from the normal process of nutrition to the disease of inflammation, that we cannot draw a definition-line between them, we may be sure that the main laws of physiology are the laws alike of the disease and of the healthy process; that the same forces are engaged in both; and that though interfered with by the conditions of the disease, they are not supplanted or annulled.

Now, such transitions from the normal processes to that of inflammation are not rare. We may trace them, for example, in the gradual passage from the active exercise of the brain, or of the retina, to its "irritation" when overworked, and thence to its complete inflammation and impairment of structure, after long exposure to what had been a natural stimulus, or to what, in a less degree, might be so. Or, on the introduction of medicines, such as certain diuretics, into the blood, we may trace gradations from the normal increase of the functions of the kidneys, under what is regarded as no morbid stimulus, to their intensest inflammations. Or, again, in the application of an abnormal stimulus, such as that of a heat greater than the natural temperature of the body, where shall we mark the line at which inflammation begins to supervene on health? We may, indeed, say that stagnation of blood, or effusion of liquor sanguinis, shall be the condition *sine qua non* of inflammation; we may call whatever falls short of these "active congestion," "irritation," or by any other name; but in practice, such distinctions are often impossible, and sometimes untrue, and in study, the terms are convenient for the sake of brevity rather than of clearness.

Evading, then, the question of the precise definition of inflammation, I shall endeavour, first, to describe the state of an inflamed part, giving to the description such a plan and direction as may best help the chief design of contrasting the inflammatory with the normal method of nutrition, and of showing that the immediate causes and the chief constituents of the inflammatory state are to be found in alterations of those things which are necessary conditions of the healthy nutrition of a part.

The conditions of the healthy maintenance of any part by nutrition, are—1st, a regular and not far distant supply of blood; 2d, a right state and composition of that blood; 3d (at least in most cases), a certain influence of the nervous force; and 4th, a normal state of the part in which nutrition is to be effected.* All these are usually altered in inflammation.

I. The supply of blood to an inflamed part is altered both by the changes of the blood-vessels, especially by their enlargement, and by the mode in which the blood moves through them.

The enlargement of the blood-vessels is, I suppose, a constant phenomenon in the inflammation of a part; for, although in certain parts, as the cornea, the vitreous humour,† and the articular cartilages, some of the signs or effects

* See Lectures on Nutrition, &c., in the Medical Gazette, 1847.

† See, especially, a case by Mr. Bowman, in his 'Lectures on the Eye,' p. 214.

of inflammation may be found where there are naturally no blood-vessels, yet I doubt whether these ever occur without enlargement of the vessels of the adjacent parts, and especially of those vessels from which the diseased structure derives its natural supply of nutritive material, and which may therefore be regarded as being its blood-vessels, not less than those of the part in which they lie. Thus, in inflammation of the cornea, the vessels of the sclerotica and conjunctiva are enlarged, and in ulceration of articular cartilages, those of the surrounding synovial membrane or subjacent bone.

The enlargement usually affects alike the arteries, the capillaries, and the veins of the inflamed part; and usually extends to some distance beyond the chief seat or focus of the inflammation. To it we may ascribe the most constant visible sign of inflammation,—the redness, as well as much of the swelling. Its amount is various; it may be hardly perceptible, or it may increase the vessels to twice or three times their natural diameter. Extreme enlargement is admirably shown in Hunter's specimen * of the two ears of a rabbit, of which one was inflamed by thawing it after it had been frozen. "The rabbit was killed when the ear was in the height of inflammation, and, the head being injected, the two ears were removed and dried." A comparison of the ears, or of the drawings from them, shows all the arteries of the inflamed ear three or four times larger than those of the healthy one, and many arteries that in the healthy state are not visible, are, in the inflamed state, brought clearly into view by being filled with blood.

I have repeatedly seen similar enlargements of both arteries, and veins, and capillaries in the stimulated wings and ears of bats. The like phenomena occur in the webs of frogs, and other cold-blooded animals; but in these I think, the amount of enlargement is generally less.†

The redness of an inflamed part always appears more than is proportionate to the enlargement of its blood-vessels; chiefly because the red corpuscles are much more closely crowded than they naturally are in the blood-vessels. The vessels of an inflamed part are not only dilated, but appear crammed with the red corpuscles, which often lie or move almost as if no fluid intervened between them; their quantity appears increased in far greater proportion than that of the liquid part of the blood.

This peculiarity is even more manifest in the frog than in the bat; for in the former, the crowding of corpuscles may occur in vessels that appear to have undergone no change of size on the application of the stimulus.‡

Another, but a minor, cause of the increased redness of the inflamed part is sometimes to be observed on the oozing of the colouring matter of the blood-corpuscles, both into all the interspaces between them, and through the walls of the small vessels into the adjacent tissue. During life this may be noticed, especially when the blood is stagnant in the vessels, and it may give them a hazy, ruddy outline, but it is generally much more considerable after

* Pathological Museum of the College, No. 71. Catalogue, vol. i, p. 33. See also Hunter's Works, vol. iii, p. 322, and Pl. xx.

† Emmert, who is among the few that have measured it, says it is equal to one half or one third of the normal diameter of the vessels. Bidder denies it altogether. See Henle and Pfeufer's Zeitschrift, B. ii and iv.

‡ I do not more particularly refer to what is described as the encroachment of the red blood-corpuscles on the lymph spaces, or the layer of fluid that lies in apparent rest adhering to the walls of the vessels. The two-pointed description of this layer has led to very exaggerated notions concerning it: its existence is certain, but it is too thin for any blood-corpuscle to lie at rest in; and when white corpuseles remain by the walls of the vessels, it is evident that they do so more because of their own adhesiveness than because a small portion of the fluid about them is at rest.

death, when we may ascribe to it no small portion of the redness that an inflamed part may still present.

In the state of inflammation no new blood-vessels are formed. Many more may come into view than were at first seen in the part; but these are only such as were invisible till the flood of blood-corpuscles filled and distended them. So it was in the rabbit's ears; in the healthy ear no trace can be seen, with the naked eye, of any vessels corresponding with one of the largest, or with many of those of inferior size in the inflamed ear. So it is, too, in microscopic examinations. Within half an hour after stimulating a bat's wing, many vessels may come into view which could not be seen before, and with which none can be seen corresponding in the other wing, though doubtless such vessels exist there of smaller size.

It is only when the inflammation has subsided, and the lymph exuded from the blood-vessels begins to be more highly organised, that new vessels are formed and pass into the lymph, as if for the maintenance of its increase or development.* So long as the inflammation lasts, the intensest redness in parts naturally colourless,—even such as we see in acute inflammation of the conjunctiva, or yet more remarkably in those of periosteum,† or in congestion of the stomach,—is due to the enlargement of the natural blood-vessels, to their admitting crowded red corpuscles, and in a much less degree, and perhaps in only certain cases, to the diffusion of the colouring matter of the blood.

With the enlargement of the blood-vessels a change of shape is commonly associated. Being usually elongated as well as diluted, they are thrown into curves and made more or less wavy or tortuous. Thus we may see the larger vessels in an inflamed conjunctiva,—or more plainly the subperitoneal arteries in cases of peritonitis; so, too, they are represented in the inflamed rabbit's ear.‡

A more remarkable change of shape of the small vessels of inflamed parts is that in which they become aneurismal or varicose. The first observations of this state were published, I believe, by Kölliker and Hasse, in an account of a case of inflammatory red softening of the brain, in which many of what, at first sight, appeared to be points of extravasated blood, proved to be dilatations of capillary vessels filled with blood. After this they found the same changes, but in a much less degree, in some cases of inflammation artificially excited in the brains of rabbits and pigeons.§ Many, as well as myself, have since made similar observations, most of which, however, seem to show that the peculiar dilatation has its seat in the small arteries, not in the capillaries of the inflamed part. The diagrams illustrate some of the dilatations observed in vessels of the brain by Kölliker and Hasse; and of those seen by Bruch‖ in the peritoneum of a dog after a wound in the abdomen; one from a specimen of diseased ovary, described by Professor Harting, and given to me by Dr. Van Leeuwen; and some from a case of inflammation, or extreme congestion of vessels, in a fringe of false membrane on a pericardium. The

* Mr. Hunter held this opinion; but more lately the contrary one has been commonly held. See his Works, vol. iii, p. 322.

† As illustrated in Mr. Stanley's plates, pl. vii, fig. 1, which represents a specimen in the Museum of St. Bartholomew's, Series i, No. 195. The whole inner surface of the inflamed periosteum of a tibia is bright scarlet.

‡ Sometimes such tortuosity makes the vessels appear varicose, as in a case by Reichert, in Müller's Archiv, 1847.

§ See, regarding all the cases, Kölliker's paper, in his Zeitschr. für wissensch. Zoologie, B. i, s. 262 et seq.

‖ Henle and Pfeufer's Zeitschrift, Bd. v, s. 65, and taf. i

several figures represent various forms and amounts of partial dilatation. Some are like gradual fusiform dilatations of the whole circumference of the vessel; some like shorter and nearly spherical dilatations of it; some like round, or oval, or elongated pouches, dilated from one side of the wall; in short, all the varieties of form which we have long recognised in the aneurisms and aneurismal dilatations of the great arteries may be found in miniature in the small vessels of such inflamed parts.

Frequently, however, as this state of the small vessels has been observed (and I believe some measure of it may be found in the inflammations of most membranes), yet, I think, we may not assume it to have a necessary or important connection with the other phenomena of inflammation. It may be as a mere accident to the inflammatory process, and due to some weakening of the vessels, which renders them unable to resist uniformly the increased pressure of the blood; or, perhaps, in some cases, as Mr. Quekett has suggested to me, the pouch-like dilatations may represent a disturbed effort for the production of new blood-vessels by dilatation, or out-growth of the walls of those already extant.

Such is the ordinary state of the blood-vessels of an inflamed part: all dilated and elongated, tensely filled with blood, of which the red corpuscles are in excess, often wavy and tortuous, and sometimes variously aneurismal.

But the supply of blood to an inflamed part is affected by its mode of movement, as well as by the size of the blood-vessels; this, therefore, I must now describe.

Nearly all the observations hitherto recorded on the morbid changes in the movement of the blood have been made with the webs of frogs; and it has been objected that it is not safe to apply conclusions drawn from them to the case of warm-blooded animals. I have therefore employed in my recent observations the wings of bats, in which (when one has acquired some art in quieting them with chloroform or gentle management) nearly all the phenomena of the circulation, as affected by the application of stimuli, may be watched as deliberately as in the frog, and in some respects even more clearly.

I think we may believe that what may be seen in the wings of bats occurs, in the like circumstances, in all warm-blooded animals. It is true that, like the other hybernants, the bats, while they are in their winter sleep, resemble the cold-blooded animals, in that their temperature is conformed to that of the external air, and scarcely exceeds it. It is true, also, that when they are ill nourished, their temperature, even in their active state, is comparatively low, ranging from 65° to 80° F., in an atmosphere of 60°; and that generally they are liable to much greater diversities of temperature than our own bodies are.* Yet, since in the development of their nervous system, and the com-

* For instance, I found the temperature of a strong and active Noctule-Bat (*Vespertilio noctula*) thus various in two days:—

April 29th, at noon, after he had been nearly two hours under the influence of chloroform, and on awaking had been struggling very actively, his temperature was 99° F. At 9, p.m., having meantime been quiet, hanging by his hind feet, and looking sickly, his temperature was only 70°. When disturbed he became very fierce and active, shrieking, and biting the bars of his cage; and at 9h. 40m. his temperature was 92°. Soon after this he became quiet again, and at 10h. 30m. his temperature was 80°. The temperature of the atmosphere during these examinations had gradually increased from 61° to 67°.

30th.—At 8 a.m. he was feeble, but not torpid: the temperature of the room during the night had been between 40° and 45°, and was now 57°; the temperature of the bat was only 59°. At 11 a.m., after struggling violently for half-an-hour, it rose to 69°. After being long under chloroform, and nearly dying, he remained all the afternoon only one or

mensurate development of their heart and respiratory organs, and in the close reciprocal relations in which these act, the bats resemble the other warm-blooded vertebrata, we may, I think, fairly assume a close resemblance also in their processes and conditions of nutrition; especially we may assume that this resemblance exists while they are in their active period of life, and in good health, as those were in which nearly all my observations were made.

Before describing the effects of irritation, it may be well to point out a peculiarity in the arrangement of the blood-vessels of the bat's wing. The principal arteries and veins lie side by side at each border of the metacarpal bones and phalanges, and the intervening membrane contains their numerous branches and capillaries. But, very generally, the arteries of the second and third order of branches pass into veins of corresponding size, without any intermedium of capillaries. The capillaries are rather in the position of offsets from the continuous channels of arterial and venous loops, than in their more ordinary relation as intermediate canals, leading from arteries to veins. I know not to what this condition may have reference, or what purpose it may serve; but, in relation to the phenomena of inflammation, it appears to have no other effect than that, through the abundant anastomosis, a great obstacle to the movement of the blood is scarcely likely to occur.

The simplest effects upon the blood-vessels are produced by a slight mechanical stimulus. If, as one is watching the movement of blood in a companion artery and vein, the point of a fine needle be drawn across them three or four times, without apparently injuring them or the membrane over them, they will both presently gradually contract and close. Then, after holding themselves in the contracted state for a few minutes, they will begin again to open, and gradually dilating, will acquire a larger size than they had before the stimulus was applied.

Simple as this observation is, it involves some cardinal facts in our pathology. It illustrates, first, the contractile power of both arteries and veins; and, by the manner of their contraction, which follows at some interval after the application of the stimulus, and is slowly accomplished, it shows that their power of contraction is like that of parts with simple or organic muscular fibres. And one may notice here the illustration of the stoppage of hæmorrhage from small vessels. In one cut we may divide a hundred such vessels as these on the surface of a stump, and they may cease to bleed in a few seconds: doubtless, the very stimulus of the knife, while dividing them, has made their walls contract and close.

But, again, the experiment shows the vessels re-opening and becoming wider than they were before, either yielding more to the pressure of the blood which previously they resisted with more strength, or else dilating, as of their own force, with that which Mr. Hunter called active dilatation, and compared with the act of dilatation of the os uteri. In whichever way the dilatation is effected, whether it be active or passive, the vessels will not at once contract again under the same stimulus as before affected them. The needle may be now drawn across them much oftener and more forcibly, but no contraction ensues, or only a trivial one, which is quickly succeeded by dilatation. Yet with a stronger stimulus, such as that of great heat, they will again contract and close. And such a contraction excited by a cautery may last more than a day, before the vessels again open and permit the flow of the blood through

two degrees warmer than the atmosphere. But at night, at 12h. 15m., he recovered and became active, and, while the atmosphere was at 65°, he was at 85°. At 12h. 40m., after being made very fierce, he was at 88°; and at 1h. 30m. remained at 85°. Next morning he was again scarcely warmer than the atmosphere. The temperature was always taken with a small thermometer applied to the surface of the abdomen.

them. So that in this we have an illustration of the secondary hæmorrhages from vessels which, after their first closure, have not been sealed by the coagulating blood, or the exudation of lymph,—as well as an illustration of the effect of the cautery or of hot water in again checking such hæmorrhages, and more permanently closing up the vessels.*

Moreover, we may observe in this experiment the adapted movement of the blood. As the vessels are contracting the blood flows in them more slowly, or begins to oscillate; nay, sometimes, even before the vessels begin visibly to contract, one may observe that the blood moves more slowly in them, as if this were the first effect of the stimulus: nor am I sure that I have ever seen (what is commonly described) the acceleration of the flow of blood in the contracting vessels. Such an acceleration, however, is manifest, as the vessels re-open; and as they dilate, so, apparently, in the same proportion, does the flow of blood through them become more free, till at length it is quite manifest that they are traversed by both fuller and more rapid streams than passed through them before the stimulus was applied. How long this state may last depends on many circumstances hard to estimate: but at length it ceases, and the vessels, and the circulation through them, assume again their average or normal state.

Such are the effects of the simplest stimulus of blood-vessels. Corresponding observations have been made on those of frogs, especially by E. H. Weber;† but he used the electro-magnetic stimulus: and from the relation of his experiments we may, I think, conclude that the vessels of the warm-blooded animals may be effected by much less severity of stimulus than those of cold-blooded ones. Moreover, the contraction of the veins in his experiments was very slight, and sometimes not discernible; so it always appears to be in frogs; but in bats it is quite as well marked as that of the arteries.

The effects of the application of other stimuli to the wings of bats correspond in kind with those I have just described, but differ in degree and extent. If a drop of acetic acid, or of tincture of capsicum, of turpentine, or of ethereal solution of cantharides, be placed on a portion of the wing, or washed over it, one sees a quickly ensuing dilatation of the blood-vessels, and a rapid flow of blood through them all. I am not sure that the dilatation is preceded by contraction. Certainly the contraction is very slight, if it occurs at all; but the dilatation is usually much more extensive. When the stimulus has been applied to only one spot upon the wing, the whole of the blood-vessels in the corresponding metacarpal space, and even those of the adjacent spaces, may enlarge. One might imagine that the dilatation of vessels was due to an increased action of the heart, if it were not that (as I think) it is always greater at the very point to which the stimulus was applied than in any other part of the same wing, and is never at all imitated in the corresponding parts of the opposite wing.

As I have already said, the streams of blood are more rapid in the dilated vessels than in the others, and than in those of the opposite wing. They are also more steady; for in what appears to be the natural state of the circulation in the bat's wing, it is not unfrequent to see an occasional oscillation in the venous stream, an occasional stoppage, or back-current, and then a

* For the control of hæmorrhages something more than the contraction of the vessels is required, that their orifices may be *sealed* before they can again dilate; and it is probably to the absence of this something, more than to any condition of the vessels, that we must look for the explanation of secondary hæmorrhages from small vessels.

† Müller's Archiv, 1847.

more forcible rush forwards; but these are rarely seen when the stimulus has produced the effect that I have described.

The state which is thus induced by stimuli is what is commonly understood by the expressions "active congestion," or "determination of blood," in a part. It consists, briefly, in general enlargement of the blood-vessels of the part, with an increased velocity of the blood in them. It is, probably, just such a state as this that is felt by suckling women in what they term the "flow of milk," which is no doubt an increased flow of blood into the mammary gland just before a quicker secretion of the milk. Less normally, it is such a state as this that we observe in the skin after the application of mustard, or sharp friction, or a heat from 20° to 50° above its own, or in the conjunctiva when stimulated by dust that is soon dislodged; and such we may believe to be the condition of many internal organs when we might doubt whether they are inflamed, or are only very actively discharging their natural functions. Herein, indeed, in what I have described, is one of the pieces of neutral ground between health and disease: a step in one direction may effect the return to health, in another the transit to what all might admit to be the disease of inflammation.

Now this transit appears to be made when the circulation, which was rapid, begins to grow slower, without any diminution, but it may be with an increase, of the size of the vessels. This change we may see in the bat's wing. After the application of such stimuli as I have already mentioned, the movement of the blood may become gradually slower, till, in some vessels, it is completely stagnant. But a corresponding state is better seen after such an injury as that of a fine red-hot needle driven into the membrane of the wing, or through it.

The first effect of such an injury (in addition to the charring and searing of the membrane, the obliteration of its blood-vessels, and the puckering of the portion of it adjacent to the burn) is to produce contraction of the immediately adjacent arteries and veins. They may remain closed, or, as I have already described, after being long closed, may again open, and become wider than they were before. This dilatation follows more certainly, and perhaps without any previous contraction, in the arteries and veins at a little distance from the burn. In these there speedily ensues such a state of "determination of blood" as I have already described: in arteries and veins alike the stream is full and rapid; and the greater accumulation, as well as the closer crowding of the red corpuscles, makes the vessels appear very deep coloured. The contrast of two diagrams, showing the natural and the stimulated conditions, illustrates this difference sufficiently well. The vessels of the one, nearly twice as large as those of the other, darker, and more turgid with blood; and, in the one, numerous capillaries which are not visible in the other. But diagrams cannot show the changes in the mode of movement. Close by the burn, the blood which has been flowing rapidly begins to move more slowly, or with an uncertain stream,—stopping, or sometimes ebbing, and then again flowing on, but, on the whole, becoming gradually slower. Thus it may, at length, become completely stagnant; and then, in the vessels in which it is at rest, it seems to diffuse and change its colour, so that its crowded corpuscles give the vessels a brilliant carmine appearance, by which, just as well as by the stillness of the blood, they may always be distinguished. As one surveys an area surrounding this part in which the blood is stagnant, or moves slowly, one sees the streams increasing gradually in rapidity. And often, when there is stagnation in a considerable artery, one may see the blood above or behind it pulsating with every action of the heart, driven up to the seat of stagnation, and thence carried off by the collateral branches;

while in the corresponding vein it may oscillate less regularly, delaying till an accumulated force propels it forward, and, as it were, flushes the channel.

Again, in the same area as that in which the movement is pulsatile or oscillating, and in the area beyond it, one sees the full and rapid and more numerous streams of "active congestion;" and these may extend over a space altogether uncertain.

Such is the general condition of the circulation round a part thus inflamed; but the varieties in lesser points that may be presented cannot be described. These must be seen; and, indeed, the whole sight should be viewed by every one who would have in his mind's eye a distinct image of what in practice he must often too obscurely contemplate.

The phenomena that I have described as seen in the bat's wing correspond very closely with those observed in the frog's web. Only, I think, the stagnation of blood is neither so constant nor so extensive in the bat; it is seen in portions of single vessels, rather than in districts of vessels,—usually in corresponding portions of arteries and veins, as they lay side by side. The stagnation usually extends into such branches as may be given off from the vessels that are its principal seats; and three or four such seats of stagnation may appear placed irregularly about the burn, or other focus of the inflammation; but I have never seen a general stagnation of blood in all the vessels of even a severely stimulated part. My impression is that in strong and active warm-blooded animals stagnation of blood would be found in only the most severely inflamed parts; in others, I think, retardation alone would exist.

To sum up now what concerns the supply of blood in an inflamed part. We seem to have sufficient evidence that, in general, in the focus of the inflammation, blood is present in very large quantity, distending all the vessels, gorging them especially with red corpuscles, but often moving through them slowly, or even being in some of them quite stagnant; that all around this focus, the vessels are as full, or nearly as full, as they are in it, but the blood moves in them with a quicker stream, or may pulsate in the arteries, and oscillate in the veins; that, yet further from the focus, the blood moves rapidly through full but less turgid vessels; and that this rapidity and fulness are not to be ascribed merely to the blood, which should have gone through the inflamed part, being driven through collateral channels, but in such a state as is commonly understood as an "active congestion," or "determination of blood," in the part.

I have already said that we may believe that what is seen in the bat represents fairly the state of inflamed parts in all warm-blooded animals. I am quite conscious that the most one can see with the microscope is but a faint picture of such inflammations as we have to consider in practice; that it is very trivial in both its appearance and its results. Still, it is a picture of a disease of the same kind; and a miniature, even faintly drawn, may be a true likeness. Besides, all that can be observed of the complete process of inflammation in man is consistent with what we can see in these lower and lesser creatures. The bright redness of an inflamed part testifies to the fulness of its blood-vessels, and the crowding of the red corpuscles; the occasional duskiness or lividity of the focus is characteristic of stagnation; the throbbing in the part, and about it, and the full hard pulse in the ministrant arteries, are sure signs of obstruction to the passage of blood; the gush of blood on cutting into the tissues near an inflamed part, or in bleeding from one of their veins, tells of the determination of blood in these, and of the tension in which all these containing blood-vessels are held.

It is particularly to be observed that the stagnant or retarded blood is not apt to coagulate. I have found it fluid after at least three days' complete

stagnation, and so I believe it would remain till it is cleared away, unless the part sloughs. In the latter case it would coagulate, as it does in carbuncles and the like, which hardly bleed when we cut them through; but, so long as the blood is fluid, though stagnant, it may be driven from the vessels with full force as soon as an easy exit for it is made by cutting into the inflamed part, or opening one of its large veins. I need here only refer to Mr. Lawrence's well-known and instructive experiment. In a patient with an inflamed hand he made similar openings into veins in both arms. From the vein on the diseased side, three times more blood flowed than from the vein in the healthy arm, in the same time; and this increased flow represented at once the greater determination of blood about the focus of the inflammation, and the greater tension in which were held the walls of the blood-vessels, and, indeed, all the integuments of the inflamed and swollen part.

Now, to what can we ascribe these changes in the movement of the blood? In all the pathology of inflammation no problem seems more difficult than this principal one.

It has been commonly said that, as the vessels contract, therefore the movement of blood becomes more rapid in them, as when a river entering a narrow course moves through it with a faster stream; and that then, as the vessels widen, so the stream becomes, in the same proportion, slower. But this is far from true. The stream often becomes slower as the artery or vein becomes narrower by contraction; and then, as the tube again dilates, the stream grows faster; and then, without any appreciable change of size, it may become slower again, till complete stagnation ensues in at least some part of the blood-vessel. I think I can be quite sure that the velocity of the stream in any vessel of an inflamed part is not determined by the diminution or enlargement of the channel. Without change of size, the stream may be seen decreasing from extreme velocity to complete stagnation.

On what the alteration of movement of the blood in such a case depends I cannot tell; but we have facts enough to justify such an hypothesis as that there may be some mutual relation between the blood and its vessels, or the parts around them, which, being natural, permits the most easy transit of the blood, but, being disturbed, increases the hinderances to its passage. Such hinderances appear to be produced by the addition of salts of baryta, or of potash, to the blood; the presence of an excess of urea in the blood probably produces the like effect: and such facts as these make the hypothesis I have referred to not unreasonable. At any rate, the belief that the more or less rapidity of movement of blood through small vessels may depend on other than evident mechanical relations, cannot appear absurd to any one who has seen the movements of fluid in the Chara, or Vallisneria, or any such plants, in which a circulation is maintained without any visible source of mechanical power.

II. I mentioned, as the second condition necessary to the healthy nutrition of a part, a right state and composition of the blood. In a former course of lectures * I pointed ont that, by this state, we must understand not merely such purity of the blood that chemistry cannot detect a wrong constituent in it, or a wrong quantity of any of the normal ones, but that natural constitution of the blood by which it is exactly adapted to every tissue that it has to nourish,—with an adaptation so exact that chemistry cannot approach to the determination of whether it is maintained or lost.

* On Nutrition, &c., published in the Medical Gazette for 1847.

That this adaptation is disturbed in many cases of inflammation is proved by the instances in which inflammations plainly have their origin in morbid conditions of the blood. But I fear that the nature of this disturbance cannot yet be chemically expressed, and that the facts which chemistry has discerned in the condition of the blood in inflammations cannot yet be safely applied in explanation of the local process. For, first, we observe the phenomena of inflammation where we cannot suppose the whole blood disordered,—as after the application of a minute local stimulus, such as a foreign body on the conjunctiva; and, secondly, among the changes observed in inflammatory blood, the principal one—namely, the supposed increase of fibrin—is ambiguous: it may be at once an increase of fibrin and of the white corpuscles of the blood. These two constituents of the blood, the fibrin, and the white or rudimental corpuscles, cannot be well separated hy any process yet invented; and in all the estimates of fibrin, whether in health or in disease, the weight of the white corpuscles is included. Now, in many inflammations, these corpuscles are increased, and we have no means of clearly ascertaining how much of an apparent increase of fibrin is really such, and how much is due to the corpuscles entangled in the fibrin. Till this can be settled, I think we may not deduce any of the local phenomena of inflammation from the increase of fibrin in the blood; neither more assuredly can we trace, as some do, the fever and other general signs of inflammation to the abstraction of fibrin and albumen by the exudation of the blood.*

The other changes of the blood in inflammation—the diminution of its red corpuscles and increase of water—are even less adapted to explain any of the phenomena of the local process. Whatever may be their strength or value as facts, they are as yet isolated facts, such as one cannot weave into the pathology of the disease.

I fear, too, that the structural condition of the blood will not, more than the chemical, help us to explain the phenomena of inflammation. Some of our most worthily distinguished physiologists have ascribed much to the existence of large numbers of the white blood-corpuscles, and their accumulation in the vessels of the inflamed part: indeed, they have taken this for the foundation of nearly their whole doctrine of inflammation, ascribing to it both the stagnation of the blood and the changes it is presumed to undergo,—such as the increase of fibrin, and many others. But the facts on which they have rested are unsound: their observations have been made on frogs, and do not admit of application to our own case, or, perhaps, to that of any warm-blooded animal. In many frogs, especially in those that are young, or sickly, or ill-fed, the white corpuscles are abundant in the blood: they are rudimental blood-cells, such as may have been formed in the lymph or chyle; and in these cases they are either increasing quickly in adaptation to quick growth, or else increasing because, through disease or defective nutriment, although their production is not hindered, yet their development into the perfect red blood-cells cannot take place. In either case, their peculiar adhesiveness making them apt to stick to the walls of the blood-vessels, they may accumulate in a part in which the vessels are injured or the circulation is slow, and thus they may sometimes augment the hinderances to the free movement of the blood. But I believe nothing of the kind happens in older

* The whole of this part of the current pathology of inflammation seems to have been too hastily constructed. The local changes observed in the frog have been used to explain the chemical changes of the blood in man, although no such changes have been proved in the blood of the frog; and the changes in the blood of man have been used to explain in him the existence of local phenomena which are assumed, but have never been proved, to be similar to those observed in the frog.

or more healthy frogs, or in any ordinary inflammation in the warm-blooded animals. I have drawn blood from the vessels in the inflamed bat's wing, in which it was quite stagnant, and have found not more than one white corpuscle to 5000 red ones. I have often examined the human blood in the vessels of inflamed parts after death, and have found no more white corpuscles in them than in those of other parts. In blood drawn from inflamed parts during life, I have found only the same proportion of white corpuscles in them as in the healthy parts of the same person. I therefore cannot but accord with the opinion often expressed by Mr. Wharton Jones and Dr. Hughes Bennett, that an especial abundance of white corpuscles, *i. e.* of rudimental blood-cells, in the vessels of an inflamed part, is neither a constant nor even a frequent occurrenee; and I believe that, when such corpuscles are numerous in an inflamed part, it is only when they are abundant in the whole mass of the blood. Now, as already stated, they are thus abundant in some cases of inflammation, especially, I think, in those occurring in people that are in weak health, and in the tuberculous; but, even in these cases, I have never seen an instanee in which they were present in nearly sufficient quantity to add materially to the obstruction of the blood in the inflamed part, nor one in which any influence of theirs could be suspected to alter peculiarly the constitution of the blood therein.

Mr. Wharton Jones was the first to describe accurately a remarkable condition presented by the red blood-cells in inflammations. As soon as ever a drop of inflammatory blood is spread out thinly, the corpuscles seem to run together and adhere in long rows or clusters, and these holding together give the clot thus formed on a slip of glass the peculiar mottled pink and white appearance which Mr. Hunter observed as one of the characters of inflammatory blood. The same condition is observed in the blood of pregnant women, and appears natural in that of horses; and in all these eases it may be regarded as the chief cause of the formation of the buffy coat, inasmuch as the clustered blood-cells, sinking rapidly, will generally subside to some distance below the surface of the liquid part of the blood, before the coagulation of the fibrin is begun.

Some have supposed that a similar adhesion of the blood-cells may occur in the vessels of an inflamed part. I have seen nothing of the kind in either the inflamed bat's wing or in the vessels of inflamed organs examined after death. When the blood is not stagnant, the corpuscles are indeed closely crowded, but they are not clustered, nor do they appear adherent: neither does such elustering appear even in stagnant blood; the change here appears to be a diffusion of the colouring matter, so that the outlines of individual blood-eells cannot be seen, and all the contents of the vessel present an uniform bright carmine tint.

But although we can see so little of the changes that may ensue in blood thus stagnant or much retarded, yet we may be nearly sure that the blood in an inflamed part does undergo important changes, when we remember what general effeets, what eonstitutional disturbance, may ensue in the train of an inflammation of purely local origin. Changes probably ensue in the blood similar to some of those that we shall have to trace in the lymph effused from it into the parts around the vessels; possibly particles of fibrin may coagulate in it, and corpuscles of lymph or pus may be formed and degenerate within it; and these, when the stagnation is not constant, or is incomplete, or is passed away, may be carried into the general circulation, infecting the whole blood, exciting general disturbance, as in traumatic fever, or producing various and wide-extending suppurations, as in the purulent diathesis following local injury. All these, and many other concomitants of inflammation, may be

reasonably ascribed, at least in part, to the changes that the blood undergoes in the inflamed tissue; but I must repeat that nothing that either the microscope or chemistry has yet discerned will suffice to explain these changes: they belong rather to the theory than to the facts of inflammation.

III. The third enumerated condition for the healthy nutrition of a part is a certain influence of the nervous force. The change that this undergoes in the inflammatory mode of nutrition is, therefore, next to be considered.

That in the higher vertebrata some nervous force is habitually exercised in the nutrition of all the parts in or near which nerves are distributed; and that it is exercised, not merely in affecting or governing the size of the blood-vessels of the part, but, with a more direct agency, as being one of the forces that concur in the performance of the plastic act;—these things may, I believe, be amply proved; and I shall again have occasion to refer to them. But as we have no exact knowledge of the nervous force, or of the manner in which it operates in natural formation, so neither can we tell how its operation is affected while it shares in the production or maintenance of inflammation.

The expression that the nerves of an inflamed part are in an "excited" state, is suggested by the existence of pain,—by a slight stimulus being acutely felt,—by the natural heat, or a slight increase of the heat, being felt as a burning,—and by the part being, even independent of any known stimulus, the seat or source of subjective pains and heat. But the very frequent cases in which pain exists, and abides long, without any other sign of inflammation, and the cases in which the pain bears no kind of proportion to those other signs, or to the effects, of inflammation,—these may suggest that, besides this "excited" state of the nervous force which is felt as pain in the inflamed part, there may be some other state by which the nervous force is more intimately connected with the inflammatory process,—a state of disturbance, which may, indeed, be felt as pain, but which more properly affects the influence of the nervous force in the process of nutrition.

We obtain some evidence of the existence of such a state when we observe that, without relation to pain, it is communicable from the nerves of inflamed parts to those of other parts; in which parts, then, a kind of sympathetic inflammation may be generated. This transference, or communication of the disturbance of nervous force is, indeed, evident enough in relation to that state which is felt as pain; for pain is not limited to the inflamed part, but is diffused around it, and is in sympathy often felt where no other sign of inflammation exists. But besides, and sometimes, I repeat, independent of this condition which is felt as pain, the inflammatory condition of the nervous force may be similarly communicated or transferred. The simplest may be the most proving instances. Whoever has worked much with microscopes may have been conscious of some amount of inflammation of the conjunctiva in consequence of over-work. Now the stimulous exciting this inflammation has been directly applied to the retina alone; and I have often had a slightly inflamed left conjunctiva, after long working with the right eye, while the left eye has been all the time closed. I know not how such an inflammation of the conjunctiva can be explained, except on the supposition that the excited state of the optic nerve is transferred or communicated to the filaments of the nerves of the conjunctiva, generating in them such a state as interferes with its nutrition. It is true that in these simpler cases the retina is not itself evidently inflamed; but after yet severer stimulus it commonly is so, and in these the conjunctiva shares in the evil effects of the communicated stimulus,—effects which we cannot ascribe to any alteration in the blood, or the size of the blood-vessels.

I may mention another case: the occurrence of inflammation of the testicle in cases of severe irritation of the urethra. The most unexceptionable cases of the kind are those in which the irritation is produced by a calculus impacted in a healthy urethra. I have here a specimen* in which extensive deposits of lymph and pus are seen in the testicle of a man in whose urethra a portion of calculus was impacted after lithotrity. Here is such an inflammation as we cannot refer to disease of the blood, and attended by such changes as we cannot explain by any enlargement or paralysis of the blood-vessels: nor do I know how it can be at all explained except by the disturbance of the exercise of the nervous force in the testicle, which disturbance is excited by transference from the morbidly affected nerves of the primary seat of irritation.

In like manner, I believe that the extension or transference of inflammation after pain may be ascribed, at least in part, to the coincident transference of the disturbed plasturgic force of the nervous system. In paroxysms of neuralgia, we see sometimes a transient inflammatory redness or œdema of the part; so, when a more abiding pain has been excited, by sympathy with some inflamed part, there may presently supervene the more palpable effects of inflammation.

I feel that, in discussing such a point as this, one passes from the ground of demonstrable facts; but there is less fault in this than in the belief that the very little we can see of a morbid process can guide us to its whole pathology. When we look at an inflamed part, we should not think that, if we could see its blood-vessels and test its blood, we should detect all that is in error there: rather we should think that all the forces are at fault which should be concurring to the due maintenance of that part; and while we are ignorant of the nature of some of these forces, it is better that their places in our minds should be occupied by reasonable hypotheses, than that they should be left blank, or be overspread with the tinge of one exaggerated theory, such as that which ascribes all inflammation to a change in the state of the small blood-vessels.

IV. The last condition necessary to healthy nutrition in a part is the natural or healthy state of the part itself.

How, in the inflammation of a part, its proper elements are altered, we cannot say, for in the early stages of the process we can rarely see a change in them; nearly the whole of the visible error is in the blood-vessels and their contents, and in the interspaces between the proper elements of the part. Hence it is not surprising that many good pathologists have held such opinions as that the blood-vessels are the mainsprings of the process of inflammation, and that it essentially consists in an altered relation or reciprocal action between the vessels and the blood.

Yet it seems more reasonable to think that the morbid process may be determined by the state of the proper elements of the part—of its cells or filaments, or, more probably, of the material in it which is in progress of development. For, for example, some of the phenomena of inflammation may ensue, through injury or disease, in parts that have neither nerves nor blood-vessels. We have instances of this in the deposits of lymph, or the other consequences of severe injuries, in the cornea and vitreous humour,—parts which, if ever they are vascular, become so only after the effusion of lymph in them. Such, too, are seen in the ulcerations of articular cartilage, in which the vascular phenomena of inflammation are confined to the adjacent tissues. We

* From the Museum of St. Bartholomew's Hospital, Ser. 28, No. 55.

cannot in these cases ascribe the inflammation to an alteration of the relation between the blood and blood-vessels, for blood-vessels do not exist in the part in which the inflammation has its seat.

Further evidence that some morbid state of the proper elements of a part, or their altered relation to the blood, may determine both the advent and some of the results of inflammation, is afforded by analogy. In the natural state, it is almost always noticeable that the condition of each part determines the amount of blood to be supplied to it, and in some measure, also, the rate of movement and the mode of disposal of the blood. Thus, in the embryo, each part is formed in rudiment before it receives any blood, and the increasing supply of blood never precedes, but follows, and is adjusted to the increasing development and growth. In later life there are, indeed, some cases in which an accidentally increased supply of blood is followed by an increased growth of parts, as in some hypertrophies and morbid growths, or as in parts transplanted from less to more vascular structures; but the more usual or normal course is that the increasing supply of blood follows, as a consequence, the increasing growth.

We might, therefore, well expect that an alteration in the state of a part itself—i. e. not of its blood-vessels or its nerves, but of its proper elements, or, more especially, of those which are in progress of development,—would be a constant concomitant of the other changes that make up the inflammatory state. The nature of this alteration in the first instance we cannot discern; its later characters are all indicative of defective nutrition; but of these, such as softening and disintegration, aptness for absorption, ulceration, and the rest, I hope to speak in a future lecture.

Here I will only add one sentence to avoid misunderstanding. I have spoken so separately of the changes in the several conditions of nutrition, that I may have seemed to imply that inflammation may consist in the disturbance sometimes of one, sometimes of another, of these states. It is true that inflammation may have its beginning in any one of these conditions,—as in an alteration of the blood in rheumatism, in an alteration of the nervous force in irritation of the retina, in an alteration of the proper elements of the tissue in inflammation of the cornea; but probably it is never fully established without involving in error all the conditions of nutrition; and, respecting both the manner in which they may be thus all involved, and their subsequent changes, they should be studied as concurrent events, rather than as a series of events of which each stands in the relation of a consequence to one or more of those that preceded it. Nowhere more than here is the mischief evident, of trying to discern in the economy of organic beings a single chain or series of events, among which each may appear as the consequence of its immediate predecessor: most fallacious is the supposition that, starting from a turgescence and stagnation of blood in the vessels of a part, we may explain the pain, the swelling, the heat, and all the other early and consecutive phenomena of inflammation. The only secure mode of apprehending the truth in this, as in every other part of the economy of living beings, is by studying what we can observe as concurrent yet often independent phenomena, or as events that follow in a constant, but not necessarily a consequent, order.

LECTURE II.

General effects of inflammation—Cessation of the process; deliquescence and metastasis: recovery of the normal circulation of the blood—Productive effects of inflammation; the several effusions or exudations attending the process—1. *Serous exudation—its rarity—usual existence of fibrine or corpuscles in the supposed serous effusions;* 2. *Effusions of blood—secondary and primary hæmorrhages in inflamed parts—blood-stained effusions;* 3. *Exudations of lymph—General characters of inflammatory lymph—its fibrinous and corpuscular varieties—primordial forms of the various exudation-corpuscles—mixed lymph.—Comparison of the varieties of materials effused for the repair of injuries.—Conditions determining the fibrinous or corpuscular character of the inflammatory product, and the primary tendency of the inflammation to be adhesive or suppurative—respective influences of the state of the blood, the seat of the inflammation, and its degree and general character;* 4. *Exudations of mucus—their various characters, and the transformations of the mucous-corpuscles.*

The state described in the last lecture may, without further change, cease and pass by, and leave the part apparently just as it was before the inflammation. And there are two chief modes in which this may happen—namely, by simple cessation of the inflammation, or by deliquescence, as it has been called, and by metastasis, in which, while the inflammation disappears from one part, it appears in another. So far as the inflamed part itself is concerned, I believe the changes are, in both these cases, the same, and consist in a more or less speedy return to the normal method of circulation, and the normal apparent condition of the blood, and of the nerves, the tissue itself presenting no change of structure.

I do not know that any description of the process of recovery from the inflammatory state would tell more than is implied by calling it a gradual return to the natural state,—a gradual retracing of the steps by which the natural actions had been departed from. As it has been watched by many in the frog's web, and by myself in the bat's wing, the vessels that were filled with quick-flowing blood become narrower, the streams in them also becoming slower, and less gorged with red blood-corpuscles, till the natural state is restored. The pulsating or slower streams are equalized with those about them, and gradually making their way into the stagnant columns, drive them on or disperse them. In the frog, clusters of blood-corpuscles have been seen to become detached, by a stream breaking off portions of the stagnant blood, and then to float into the current, where, gradually, the several corpuscles disperse. So, too, in the frog and tadpole, after injury, I have seen fragments of fibrin, washed from the blood that had clotted in the vessels of the injured part, floating in some distant vessels; but I have seen no such changes in the warm-blooded animals.

It may be difficult to explain this recovery in the case of complicated inflammations. When a slight mechanical stimulus has been applied, and the vessels, after contracting, have dilated, we may see some signs of weakened muscular power, in the fact that the same stimulus will not make them contract again; and then their gradual recovery may be the consequence of their regaining their weakened and exhausted power, just as a wearied muscle does when left at rest. This must always be one element in the recovery of the natural state by a part that has been inflamed; indeed, it is probably that part

of recovery which is most slowly achieved. Still it is, probably, only one element in the process of recovery. In an inflammation in which all the conditions of nutrition are at fault, each must recover its normal state ; but, of the manner in which they severally do so, we have no other knowledge than is implied in the general truth, that all living things, after being disturbed from their normal mode of action, tend to recover it as soon as the disturbing force is withdrawn. The order in which the several disturbed conditions of nutrition will be restored is scarcely less uncertain : probably it is not constant, but may depend, in great measure, on the order in which they were involved in error. But we have no clear facts in this matter , only, we may observe, that in many cases, if we correct the error of one of the conditions of nutrition, the rest will be more apt to correct themselves. Thus, of the remedies for inflammation, few can act upon more than one of the conditions on which it depends : yet they may be remedies for the whole disease; for, as it were, by abstracting one of its elements, they destroy the consistence and mutual tenure of the rest.

The process of deliquescence, or the mere cessation of the disease, may be regarded as the most perfect cure of which inflammation admits. It is in many cases an unalloyed advantage ; but in some it is not so, though the local change may be the same ; for materials accumulated in the stagnant blood of the inflamed part, or absorbed from its morbidly altered tissures may, when the inflammation subsides, pass into the general current of the blood and inflect its whole mass, or disturb the nutrition of an organ more important than that which they have left. Such are the events in the metastasis of gout, and the premature subsidence of cutaneous eruptions.

To pass now to the effects of inflammation—to the events to which the inflammatory condition may lead when it does not subside in the manner just described. They are very numerous ; but they may be divided into two chief classes :—the *productive* and the *destructive* effects of inflammation. The description of the former will include the histories of the several effusions or exudations from the blood-vessels into the inflamed part, their developments, degenerations, and other changes. In the account of the destructive effects may be comprised that of the various effects of nutrition, the degeneration, absorption, ulceration, and death to which the proper elements of the inflamed part, and with them, the products of the inflammation, are liable.

I proceed, then, to these histories ; and first, of *the products of inflammation* or *inflammatory exudations.*

The materials that may be effused from the blood-vessels of inflamed parts are chiefly these—serum ; blood ; lymph, or inflammatory exudation, especially so-called ; and mucus ; or, rather, these last two are primary forms from which, by development or degeneration, many others may be derived.

I. *The effusion of serum*, except as the result of the lowest degrees of inflammation, or as a diluent of other products, is probably a rare event. That which is usually regarded as a serous effusion in inflammation, is, in many cases, a fluid that contains fibrin, and resembles the *liquor sanguinis* rather than mere serum. It is this kind of effusion on which Vogel* has fully written, under the designation of *Hydrops fibrinosus.* A good example of it may be seen in the fluid contained in blisters, raised by the action of cantharides or heat applied to healthy persons. And another form of liquid effusion differs from serum, in that though it does not coagulate, it contains a material capable of organisation into cells ; such is the fluid that fills the early vesicles of herpes, eczema, and some other cutaneous diseases.

* Pathologische Anatomie, p. 23.

The fluid that contains fibrin, and is most generally described as a serous effusion, may have the ordinary aspect of serum; more rarely it is colourless or opalescent, like the liquid part of the blood which one sees collecting for the formation of a buffy coat. The fibrin that it contains may remain in solution, or without coagulation, for an indefinite time within the body, but will coagulate readily when withdrawn. For example, the so-called serous effusion, which is abundant in the integuments near the seat of an acute inflammation in deeper parts, and which flows out like a thin yellowish serum after death, will soon form a soft jelly-like clot, that is made succulent with the serum soaked in it. The fibrine appears tough, opaque-white, and stringy, when the fluid is expressed from it, and shows all the recognised characters of the fibrin of the blood. Thus, to mention but one case which was remarkable for the delay of the coagulation; a man received a compound fracture of the leg, and it was followed by phlegmonous inflammation and abscesses up the limb. As soon as the inflammation had subsided enough, the limb was amputated; and, three days afterwards, in examining it, a quantity of serous-looking fluid oozed from the cut through the integument. I collected some of this, and it formed a perfect fibrinous clot; yet the fibrine in this case had remained among the tissues without coagulating, for three days after the death of the limb, and for many more days during the life of the patient.

Such, too, are the effusions like serum in blisters raised on the skin by heat or cantharides; such the serous effusions of peritonitis, as in hernia, and in many cases of pleurisy and pericarditis. All these fluids, although they may retain their fluidity for weeks or months within the body, during life, may yet coagulate when they are removed from the body. With these, too, may be reckoned, but as the most nearly serous of the class, the fluid of common hydrocele; for I have seen a small coagulum form in such fluid spontaneously; and the presence of fibrin may always be proved by the formation of a clot, when a small piece of blood-clot, or of some organised tissue is introduced into the fluid.

One can rarely tell why the coagulation of the fibrin in these cases should be delayed; there are here the same difficulties as are in all the exceptions from the general rules of the coagulation of the blood. But, it may be observed, the delay of the coagulation is a propitious event in all these cases of effusions; for so long as the effusion is liquid, absorption may ensue on the subsidence of the inflammation; but absorption is more unlikely and tardy when the fibrin has coagulated. Thus, large quantities of effused fluid, which, we may be sure, contained fibrin, may disappear by absorption from the seats of acute rheumatism or gout, or from the pleura or peritoneum, or from the subcutaneous tissues, and leave only inconsiderable adhesion, or thickening of the affected part. But, on the other hand, when, in the same class of cases, the fibrin coagulates, it may be organised, and the usual consequent phenomena of inflammation will ensue. Thus it is in the cases of what has been called solid œdema (as in this specimen*), where, in the neighbourhood of acute inflammation, an effusion long abides with all the characters of ordinary serous œdema; but, at length, the tissues are found indurated and adhering, the œdema having consisted in the effusion of serum with fibrin, which has coagulated and become organised in the seats of its effusion. Thus, too, it is that the damage done by rheumatism in a part is, on the whole, in direct proportion to the length of time it has subsisted there, and the opportunity given by time for the coagulation of the fibrin.

From what I have said, it will appear that nearly all of what are called

* No. 2267 in the Museum of the College.

serous effusions in inflammation are effusions of fluid containing either fibrin or a material that will organise itself into cells. But it may be said that we often find effusions after death which contain nothing but the constituents of serum, though produced in an inflammatory process. If, however, we examine these cases more closely, they will appear consistent with the others: some of the fluids will coagulate if kept for several hours, or if mixed with other serous fluids, or if fragments of fibrin be placed in them; in others we find reason to believe that fibrin has been already coagulated, or that corpuscles have been formed, but that subsequently they have been disintegrated, or even partially dissolved; and in some we may believe that similar materials have been decomposed in the last periods of life, or after death.

On the whole, it seems sure that an effusion of serum alone is a rare effect of inflammation, and that generally it is characteristic of only the lowest degrees of the disease. Among the instances of it are, probably, the cases of the chronic forms of hydrops articuli, some forms of hydrocephalus, and some cases of inflammatory œdema of the mucous membrane, as in the œdema of the glottis, and chemosis of the conjunctiva.

In the nearly constant fact of the presence of organisable materials in the products of inflammation, we have one evidence of the likeness between inflammation and the normal process of nutrition, and of its difference from the merely mechanical obstructions or stagnations of the blood. In these, the material effused from the blood is usually the merely serous part; the fluids of anasarca and ascites will not coagulate; they present neither fibrin nor corpuscles, except in the cases of extremest obstruction, when, as in cases of ascites from advanced disease of the heart, one may find flakes of fibrin floating in the abdomen, or masses of it soaked and swollen-up with serum.*

II. The second of the so-called inflammatory effusions is blood. Among the effusions of blood that occur in connection with the inflammatory process, many, as Rokitansky has explained, are examples of hæmorrhage from rupture of the vessels of lymph recently become vascular. The new vessels, or their rudiments, are peculiarly delicate; and being apt to rend, like the vessels of new granulations, with a very small force, especially when they are made turgid or dilated by an attack of inflammation of the lymph, they will commonly be sources of considerable bleeding. So, for example, it probably sometimes happens when, as the expression is, a hydrocele is converted into a hæmatocele; some lymph becoming vascular, and being submitted to even slight violence, its vessels break, and blood is poured into the sac. So, too, probably, it is with many or all the cases of what are called hæmorrhagic pericarditis. But of these, which may be called *secondary hæmorrhages*, I will speak hereafter.

Primary effusions of blood,—i. e., effusions of blood poured from the ruptured vessels of the inflamed part, and mingled with the lymph or other inflammatory product, appear to be rare in some forms or localities of inflam-

* It has been supposed that, in mechanical dropsies, the effusion of serum takes place through the walls of the small veins, and that in inflammations an equally mechanical effusion of liquor sanguinis takes place through the walls of the capillaries and small arteries; and this supposition is assumed for an explanation of the difference between a dropsical and an inflammatory effusion. But I think that in a merely mechanical obstruction of the blood, as by disease of the heart or compression of the veins, the pressure of the blood cannot but be increased alike in the veins, capillaries, and arteries, and that, in correspondence with this uniformly diffused pressure, the increased effusion will take place at once through all these vessels, in direct proportion to the permeability of their walls.

mation, but are almost constant in others. Thus,—e. g. in pneumonia, extravasated blood-corpuscles give the sputa their characteristic rusty tinge. In the inflammatory red softening of the brain, blood is also commonly effused; and the condition of the vessels, which I described in the last lecture, may well account for their occasional rupture. There are also other cases of these effusions of blood in inflammation; but I believe these imply no more than accidents of the disease.

We must not confound with hæmorrhages the cases in which the inflammatory products are merely blood-stained,—i. e. have acquired a more or less deep tinge of blood, through the oozing of some dissolved colouring matter of the blood. The natural colour of inflammatory exudation is grayish or yellowish-white, and, even when they have become vascular, their opacity in the recent state prevents their having any uniform tint of redness visible to the naked eye. When inflammatory products present the tinge of redness, it is either because of hæmorrhage into them, or because they have imbibed the dissolved colouring matter of the blood: and when this imbibition happens during life, or soon after death, it is important, as implying a cachectic, ill-maintained condition of the blood, in which condition the colouring matter of the corpuscles becomes unnaturally soluble. Thus blood-stained effusions are among the evil signs of the products of inflammation during typhus, and other low eruptive fevers, in syphilitis, and in scurvy.

III. Serous effusions, then, appear to be rare as the results of inflammation: and effusions of blood are but accidents in its course. The characteristic primary product of the inflammatory process is *lymph*, which, in one or other of its forms or modifications, may be found as the result of inflammation in all parts.

We might wish that we had for this substance, as effused in inflammation, some other name than one which is already employed for more than one other substance—as for lymph which is contained within the lymphatic vessels, and (by some) for the liquid part of the blood. Yet, on the whole, since all these fluids—the lymph of inflammation, the lymph of the lymphatic vessels, and the liquid part of the blood—have many, and their most striking properties in common, it may be better to retain the term lymph for them all, only specifying that which appears as the product of the inflammatory process by calling it "inflammatory" lymph. Thus used it may imply the most frequent, or even the especial, form of inflammatory exudation. The general meaning of the term may be—a liquid effused from the blood-vessels, especially from the capillaries,* which is capable of spontaneously solidifying or organising itself, even while its external circumstances remain apparently the same, and of which the parts thus solidified or organised may proceed by development to the construction of tissues.

The form assumed by lymph in its primary organisation is not always the same; there are, rather, two chief forms of organisation, which, though they are often seen mixed in the same lymph, are yet so distinct as to warrant the speaking of two varieties of inflammatory lymph by the names of *fibrinous* and *corpuscular*.†

To the fibrinous variety belong, as typical examples, all the instances in which inflammatory lymph, effused as a liquid, coagulates into the solid form,

* Or perhaps only from them: see a remarkable case by Mr. Bowman, 'Lectures on the Eye,' p. 44.

† Corresponding varieties are distinguished or implied by Vogel, p. 30, Dr. Andrew Clark (Medical Gazette, vol. xlii, p. 286), and others.

and yields, when the fluid is pressed from the solid part, either an opaque whitish, elastic substance, having the general properties of the clot of blood, or the softer, and, as it is supposed, the less perfect or less developed fibrin of the chyle or the absorbed lymph. Such examples of nearly pure fibrinous inflammatory lymph are found, in the cases already referred to, among what have been supposed to be effusions of mere serum. Such are many instances of effusions produced by blisters and other local irritations of the skin in healthy men; such, too, are most of the effusions in acute inflammations of serous membranes, especially in those of traumatic origin, and in those that occur in vigorous men. If, in any of these cases, the lymph be examined after coagulation or deposit in the solid form, it may be hard to distinguish it from the fibrin of the clot of blood. The layers of fibrinous lymph thus formed may be known to the naked eye, when on serous membranes, by their peculiar elasticity and toughness, their compact and often laminated structure, their grayish or yellowish-white and semi-transparent aspect, and their close adhesion to the membrane, even before they have become vascular.

In the corpuscular variety of lymph, no coagulation, in the ordinary sense of the word, takes place; but corpuscles form and float free in the liquid part. Typical examples of this form are found in the early-formed contents of the vesicles of herpes, eczema, and vaccinia; in the fluid of blisters raised in cachectic patients; in some instances of pneumonia; and in some forms of inflammation of serous membranes.

The corpuscles, exudation-corpuscles, or exudation-cells, found in such lymph as this, present very numerous varieties in their several developments and degenerations; but in their first appearance resemble very nearly the primordial condition of the corpuscles of chyle and absorbed lymph, and the white corpuscles of the blood.

I may remark here, that, in this fact of a single primordial form existing in the rudiments of many organisms, which in later periods of their existence are widely different, we find a repetition of an important fact in the first development of beings. In the early embryo, even when already some traces of the future shape and construction are dimly drawn, the whole mass may be composed of cells which are all alike in their chief characters; alike, that is, in what is visible, though potentially so different, that while one group are being transformed into blood-cells, others are coalescing to form muscular fibres, others are issuing processes to form the primordial blood-vessels or lymphatics. All these and other equally different ultimate forms are developed from the nearly uniform mass of primordial embryo- or germ-cells. And so it is in later life; many of both the normal and the morbid structures start from one primordial form, and thence proceeding, diverge more and more widely in attaining their several perfect shapes.

Of this primordial form we have perhaps the best instances in the white corpuscles of the blood, and in the corpuscles of lymph in the lymphatic vessels and thoracic duct. The same form is characteristic of the corpuscles in the vesicles of herpes and eczema, and in some forms of mucus. In all these, the first discernible organic form, the form of what might with propriety be called the *primordial cytoblast*, is that of a minute mass of soft, colourless, or pale grayish-white substance, round or oval, pellucid, but appearing, as if through irregularities of its surface, dimly nebulous or wrinkled. It does not look granular, nor is it formed (as many suppose) by an aggregation of granules; nor, in its earliest state, can any cell-wall be clearly demonstrated, or any nucleus. But, as the development of this cell-germ or cytoblast proceeds, a pellucid membrane appears to form as a cell-wall over its whole surface; and now, when water is added, it appears to penetrate this membrane, raising up

part of it like a clear vesicle, while upon the other part the mass retreats, or subsides, and appears more nebulous or grumous than before. In yet another state, which appears to be a later state of development, the action of water not only rises up the cell-wall, but breaks up and disperses the outer part of the contents of the cell, i. e., of the enclosed mass of the primordial cytoblast, and exposes in its interior a nucleus, which is commonly round, clearly defined, pellucid, and attached to the cell-wall.

To such a nucleated cell, if we name the corpuscle from which it is developed, the *primordial cytoblast*, or *cell-germ*, we may assign the name of *primordial cell.* From its various developments are derived, in the products of inflammation, all the several forms of corpuscles that are described as plastic cells, fibro-cells, caudate or fibro-plastic cells, and some forms of filaments; while, from its various degenerations, descend those known as pus-corpuscles, granule-cells, granule-masses, inflammatory globules, and much of the molecular and debris-like matter that makes inflammatory effusions turbid.

The examples of lymph which I have quoted are chiefly such as may be considered typical of the two varieties: the first, in which, spontaneously coagulating, it presents fibrin, either alone or mingled with very few corpuscles; and the second, in which corpuscles are developed alone, or with only a minimum of fibrin. But, in a large number of examples of inflammatory lymph, the fibrine and the corpuscles occur together, mixed in various proportions, the one or the other preponderating. Such instances of mixed lymph are found in the fluid of blisters in all persons not in full health; in all but the freshest inflammations of serous membranes; in most of the inflammatory deposits in cellular tissue, and in most of the viscera; and in the false membranes of croup and other similar inflammations of mucous membranes.

Now, in general, and in the first instance, the proportions of fibrin and of corpuscles that are present in the lymph of an inflammation, will determine the probability of its being organised, or of its degenerating. The larger the proportion of fibrin in any specimen of inflammatory exudation (provided it be healthy fibrin), the greater is the probability of its being organised into tissue; such as that of adhesions, indurations, and the like. On the other hand, supposing the other conditions for development or degeneration to be the same, the larger the proportion of corpuscles in lymph, the greater is the probability of suppuration or some other degenerative process, and the more tardy is any process of development into tissue. In other words, the preponderance of fibrine in the lymph is generally characteristic of the "adhesive inflammation;" the preponderance of corpuscles, or their sole existence, is an essential feature of the "suppurative inflammation."*

* In this view, the fibrinous and the corpuscular varieties of lymph nearly correspond with those which Dr. Williams, in his 'Principles of Medicine,' and others, have named plastic and aplastic; but they do not completely do so. In different instances of both varieties, very diverse degrees of plastic property may be found; and the occurrence of development or degeneration depends on many things besides the primary characters of lymph. They more nearly correspond with what Rokitansky (Pathologische Anatomie, i, 196) has distinguished as fibrinous and croupous; the varieties which he names croupous α, β, and γ, representing the several grades of lymph in which the corpuscles gradually predominate more and more over the fibrin, and assume more of the characters of the pus-cell. I would have used his terms, but that in this country, we have been in the habit of considering croupous exudations to be peculiarly fibrinous.

In the last course of Lectures (Medical Gazette, vol. xliii) I described the healing of subcutaneous wounds as usually accomplished by a fibrinous material, and that of open wounds by cells developing into fibres. These materials exactly correspond in appearance and modes of development with the fibrinous and corpuscular varieties of inflammatory lymph; and I was quite wrong in implying that fibrin alone is not a product of inflam-

The knowledge of this fact may help us to learn the several conditions on which, in the first instance, depend these two forms of inflammation, the contrast between which has lost none of its importance since the time of Hunter. I will therefore at once enter on this question;—what are the conditions that determine the production of one or the other variety of lymph,—the fibrinous, which is as the symbol of the adhesive inflammation, or the corpuscular, which may be that of the suppurative inflammation?

The conditions, then, which are chiefly powerful in determining the character of lymph, are three, namely—

1. The state of the blood;
2. The seat of the inflammation;
3. The degree and character of the inflammation.

First, in regard to the influence of the state of the blood in determining the characters of an inflammatory product, Rokitansky has happily expressed it by saying that "the product of the inflammation exists, at least in part, in its germ performed in the whole blood." Some, indeed, have supposed that lymph is only the liquor sanguinis exuded through the walls of the blood-vessels; but of this opinion we cannot be sure, and many facts will not agree with it. Still, it is not difficult to show that a certain character is commonly impressed by the state of the blood on the inflammatory product from it.

I will not refer here to the cases of inoculable diseases, in which some of the morbid material that was in the blood may be incorporated with the product of a local inflammation, though in these the correspondence of the blood and the inflammatory product from it is manifest enough; but I will refer to cases that may show a more general correspondence between the two, a correspondence such that, according to the state of the blood, so is the lymph more fibrinous or more corpuscular; more characteristic of the adhesive, or of the suppurative inflammation.

Some of the best evidence, for this is supplied by Rokitansky, in the first volume of his 'Pathological Anatomy,' a work that I cannot mention without a tribute of respect and admiration for its author, since in it, more than in any other of his writings, he has proved himself the first among all pathologists,—in knowledge at once profound, minute, and accurate, in power of comprehending the vastest catalogue of single facts, and in clear discernment of their relations to one another, and to the great principles on which he founds his systems. In this work, he has shown clearly, that the characters of inflammatory deposits in different diatheses correspond very generally and closely with those of the coagula found in the heart and pulmonary vessels after death; and that, in general, the characters of lymph formed during life will be imitated by those of clots found in the body after death, when the fibrin of the blood may coagulate very slowly, and in contact with organic substances.

Other evidence may be obtained by examining the products of similar inflammations excited in several persons, in whom the state of the blood may be considered dissimilar; and here the evidence may be more pointed than in the former case; for, if it should appear that the same tissue, inflamed by the same stimulus, will, in different persons, yield different forms of lymph, we shall have come near to certainty that the character of the blood is that which

mation, and that all the filamentous tissue formed after inflammation is developed through cells. What was then said, however, of the liability of the cells formed in the repair of open wounds to be arrested in their development, or to degenerate into pus-cells and lower forms, and of the consequent insecurity of this mode of repair as compared with the subcutaneous, is confirmed by the corresponding history of the two varieties of lymph.

chiefly determines the character of an inflammation. To test this matter, I examined carefully the materials effused in blisters raised by cantharides-plasters applied to the skin of thirty patients in St. Bartholomew's Hospital. Doubtless, among the results thus obtained, there might be some diversities depending on the time and severity of the stimulus applied; still, it seemed a fair test of the question in view, and the general result proved it to be so. For, although the differences in the general aspects of these materials were slight, yet there were great differences in the microscopic characters; and these differences so far corresponded with the nature of the disease, or of the patient's general health to whom the blister was applied, that at last I could generally guess accurately, from an examination of the fluid in the blister, what was the general character of the disease with which the patient suffered. Thus, in cases of purely local disease, in patients otherwise sound, the lymph thus obtained formed an almost unmixed coagulum, in which, when the fluid was pressed out, the fibrin was firm, elastic, and apparently filamentous. In cases at the opposite end of the scale, such as those of advanced phthisis, a minimum of fibrin was concealed by the crowds of corpuscles imbedded in it. Between these were numerous intermediate conditions which it is not necessary now to particularise. It may suffice to say that, after some practice, one might form a fair opinion of the degree in which a patient was cachectic, and of the degree in which an inflammation in him would tend to the adhesive or the suppurative character, by the microscopic character of these exudations. The highest health is marked by an exudation of the most perfect and unmixed fibrin; the lowest, by the most abundant corpuscles, and their nearest approach, even in their early state, to the characters of pus-cells. The degrees of deviation from general health are marked either by increasing abundance of the corpuscles, their gradual predominance over the fibrin, and their gradual approach to the character of pus-cells, or else by the gradual deterioration of fibrin, in which, from being tough, elastic, clear, uniform, and of filamentous appearance or filamentous structure, it becomes less and less filamentous, softer, more paste-like, turbid, nebulous, dotted, and mingled with minute oil-molecules.

I would not make too much of these observations. They are not enough to prove more than the rough truth, that the products of similar inflammations, excited in the same tissue, and by the same stimulus, may be in different persons very different, varying especially in accordance with the several conditions of the blood. Yet, simple as the observations are, they may illustrate what often seems so mysterious—namely, the different issues of severe injuries inflicted on different persons. To what, more than to the previous or some acquired condition of the blood, can we ascribe in general the various consequences that follow the same operations in different patients? The local stimulus, and the conditions by which the inflammatory effusion finds itself surrounded, may be in all alike; but, as in the simpler case of the blister; the final events of the inflammation are according to the blood.

I cannot doubt that a yet closer correspondence between the blood, and the products of inflammation derived from it, would be found in a series of more complete observations,—in such, for instance, that the characters of the blood drawn during life, or, much better, of the clots taken from the heart after death, might, in a large number of patients, be compared with those of inflammatory exudations produced, as in the cases I have referred to, by the same stimulus applied to the same tissue. In the few cases in which I have been able to make such examinations, this view has been established; and it is confirmed by the parallelism between the varieties of lymph that may be found in blisters and in the varieties of the fibrinous coagula in the heart

described by Rokitansky.* The varieties of solidified fibrin which he enumerates and classifies as fibrins 1, 2, 3, 4, are very nearly parallel with what I have enumerated as the stages from the best fibrinous to the corpuscular lymph; and, as I have already implied, he regards these clots found in the heart and vessels as representing the different "fibrinous crases" or diatheses of the blood.

I mentioned, as the second condition determining the issue of an inflammation, the seat or tissue which it occupies. I need hardly remind you that, since the time of Bichat, it has been a general impression that each tissue has its proper mode and product of inflammation. The doctrines of Bichat on this point were, indeed, only the same as Mr. Hunter held more conditionally, and therefore more truly; but they gained undisputed sway among the principles of that pathology which rested on general anatomy as its foundation.

The facts on which it is held that, in general, each part or tissue is prone to the production of one certain form of inflammatory exudation, are such as these,—that, *e.g.*, in the apparently spontaneous inflammations of the skin, lymph with corpuscles alone is produced, as in herpes, eczema, erysipelas; that in serous membranes, the lymph is commonly fibrinous, and has a great tendency to be organised, and form adhesions; that in mucous membranes there is as great a tendency to suppuration; that in the lungs, both fibrin and corpuscles are abundant in the lymph, and the corpuscles have a remarkable tendency to degenerate into either pus-cells or granule-cells; that in the brain and spinal cord the tendency is to the production of a preponderance of corpuscles, that quickly degenerate into granule-cells; while in the cellular tissue, both fibrin and corpuscles appear, on the whole, equally apt to degenerate into pus, or to be developed into filamentous tissue.

Now these are, doubtless, facts; but the rules that it is sought to establish from them are not without numerous exceptions. The instances I have lately quoted show that, in one tissue at least, the skin, the products of inflammation will vary according to the condition of the blood, although the inflammation be always similarly excited by the same stimulus. So, too (as Mr. Hunter remarks†), if it were the tissue alone that determines the character of an inflammation, we ought to have many forms of inflammation in the same stump after amputation; whereas all is consistent, or the differences among the tissues are only differences of degree: they all adhere, or all granulate and suppurate, or all alike inflame or slough.

It is, therefore, unconditionally true, that each tissue has its proper mode and product of inflammation. It has been too much overlooked that a morbid condition of the blood, or perhaps even of the nervous force, may determine at once the seat of a local inflammation, and the form or kind of inflammatory product. Thus, *e.g.*, the variolus condition of the blood may be said to determine at once an inflammation of the skin, and the suppurative form of inflammation; for, in variola, whatever and wherever inflammations arise, they have a suppurative tendency. So, in rheumatism, whether it be seated in muscles, ligaments, or synovial membranes, in serous membranes, or in fibrous tissues, there appears the same tendency to serous and fibrinous effusions, which are slow to coagulate or organise, and even less prone to suppuration. And so in the purulent diathesis; in whatever tissue the malady of the blood may localise itself, the tendency of the inflammatory product is to the formation of pus. The same might be said of the local

* Pathologische Anatomie, B. i, p. 142. † Works, vol. iii, p. 813.

inflammations that are characteristic of typhus and of gout, and, I believe, of all those diseases in which a morbid condition of the blood manifests itself in some especial local error of nutrition. And all these cases are illustrative of the general truth, that each morbid condition of the blood is prone both to produce an inflammation in a certain part or tissue, and to give to that inflammation a certain form or character.

Cases, however, remain that prove some influence of the tissue in determining, I mean, the primary form, as well as the latter development, of the product: and the true influence of the tissue in this respect is best shown in some of the cases in which inflammation, excited, apparently, by the same means, has happened coincidently in two or more very different parts in the same person. Thus we may find, *e. g.*, that in pleuro-pneumonia the lymph on the pleura is commonly more fibrinous than that within the substance of the lung; and adhesions may be forming in the one, while the other is suppurating. In cases of coincident pneumonia and pericarditis, the lymph in the lung may appear nearly all corpuscular, and all the corpuscles may show a tendency to degenerate into granule-cells, while the lymph on the pericardium may have a preponderance of fibrin, and what corpuscles it has may tend to degenerate into pus-cells. So, too, one may find, in the substance of an inflamed synovial or mucous membrane, abundant lymph-cells, while all the exudation on its surface may appear purulent.

Other instances of this kind might be cited,—enough to establish that the nature of the tissue or part affected has some share in determining the character of the products of its inflammation. On the whole, therefore, the best conclusion may be that, in any given case, the issue of an inflammation, and especially as to whether it will correspond with the adhesive or suppurative form, may be represented as the resultant of these two chief influences—the previous condition of the blood, and the nature of the part affected.

I will only add, that the supposed influence of a tissue in determining the character of the lymph formed in its inflammations, may be very probably explained by believing that the primary product of inflammation is, often, a mixture of lymph, and of the secretion, or other product of the inflamed part, more or less altered by the circumstances of the inflammations. When it is seen that in inflammations of bone the lymph usually ossifies,—in those of ligament is converted into a tough ligamentous tissue,—and that, in general, lymph is organised into a tissue more or less corresponding with that from whose vessels it was derived,—it is usually concluded that this happens under what is called the assimilative influence of the tissues adjacent to the organised lymph. But it seems more probable that no such assimilative force is exercised after the effusion; rather, we may explain the facts by believing that the material formed in the inflammation of each part partakes, from the first, in the properties of the natural products of that part; in properties which we know determine the mode of formation independently of any assimilative force.

We have some evidence of this in the products of inflammation of secreting organs, the only structures of which we can well examine the natural products in their primary condition. In a moderate amount of inflammation of a secreting gland, the discharge is usually a mixture of the proper secretion in a more or less morbid state, and of the inflammatory product. Thus we find morbid urine mixed with fibrin, or albumen, or pus. In cases of inflamed mucous membranes, the product is often a substance with characters intermediate between those of the proper mucous secretion and those of lymph. Or, again, in some membranes we may perceive a relation between their natural secretion and the usual products of their inflammation.

With these considerations I may connect what is to be said of the influence of the third among the conditions enumerated as determining the character of any inflammatory product—namely, the degree or severity of the disease. For, as a general rule, the less the degree of inflammation is, the more is the product like that naturally formed in or by the part, till we descend to the border at which inflammation merges into an exaggerated normal process of secretion: as in hydrops articuli, hydrocele, coryza, &c.

The analogies between secretion and nutrition are so numerous, the parallel between them is so close, that what can be shown of one may be very confidently assumed of the other. We may therefore believe, that in the inflammation of any part, the product will, from the first, have a measure of the peculiar properties of the material employed in the normal nutrition of the part: that, as in the inflammation of a secreting organ, some of the secretion may be mingled with the product of the inflammation, so in that of any other part, some of the natural plasma—*i. e.* some of the material that would be effused for the healthy nutrition of the part—may be mingled with the lymph. The measure of assimilation to the natural structure will bear an inverse proportion to the severity of the inflammatory process, because, the more the conditions of nutrition deviate from what is normal, the more will the material effused from the vessels deviate from the normal type. In severest cases of inflammation we may believe that unmixed lymph is produced, the conditions of the due nutrition of the part being wholly suspended; but when the inflammation is not altogether dominant, its product will not be wholly contrary to the natural one, and will, from the first, tend to manifest in its development some characters correspondent with those of the natural formations in the part. Thence, onwards, this correspondence will increase as the new tissue is itself nourished: as scars improve, so do false membranes and the like become more and more similar to natural tissues.

To sum up, then, what may be concluded respecting the conditions that, in the first instance, may determine the adhesive or suppurative characters of an inflammatory exudation; they are—1st. The state of the blood—its diathesis or crasis—the power of which is evident in that the same material may be exuded in many inflamed parts in the same person; in that this material may exhibit peculiar characters correspondent with those of the blood itself; and in that, in different persons, an inflammation excited in the same tissue, and by the same stimulus, will produce different forms of lymph, corresponding with differences of the blood. 2d. The seat of the inflammation, and the tissue or organ affected, of which the influence is shown by cases in which, with the same condition of blood, different exudations are produced in different parts or organs. 3d. The severity and acute or chronic character of the inflammatory process, according to which the product deviates more or less from the character of the natural secretion or blastematous effusion of the inflamed part.

The primitive character or tendency of any case of inflammation might be represented as the resultant of three forces issuing from these conditions.

The last product of inflammation of which I have to speak is *mucus*.

Peculiar difficulties, owing to imperfect investigations of what normal mucus really is, beset this portion of our subject. I will only venture to say that—

1. Normal mucus is a peculiar viscid, ropy, pellucid substance, which, of its own composition, has no organised particles. Such mucus is to be found in the nasal cavities of sheep, and most large mammalia, in the human uterus, and in the gall-bladder, when its duct has been lately obstructed. In all these, mucus may be found without corpuscles; and probably there are other examples of such pure and unmixed mucus.

But 2d. With all these, accidental mixtures commonly occur of epithelial particles from the mucous membrane. And these particles will vary according to the seat of the membrane; the fluid with which the mucus may be mixed, as gastric acid, intestinal alkali, &c.; the time the mucus may lie before discharge, and other such conditions.

3. The first effect of a stimulation, within the normal limits, will be to increase the secretion of the proper mucus, making it also more liquid—to increase the quantity of the epithelium cast off with the liquid—and often to induce the premature desquamation of the epithelium, so that particles of it, imperfectly formed, may be found in the mucus. Many of these immature epithelial particles have been named mucus-corpuscles, or mucus-cells.

4. In an established inflammation of a mucous membrane, there appear, in greater or less proportion, mixed with mucus, materials which have naturally no part in it, and which may be closely paralleled, or considered identical, with the products of inflammation in other parts. I am, indeed, disposed to think that we should not draw a strong contrast between the inflammatory products of mucous membranes and those of serous membranes, and other parts, except in relation to the material with which, in the several cases, the inflammatory lymph is mixed. For, in certain inflammations of mucous membranes we find fibrinous exudations, as in Hunter's experiments of injecting strong irritants into the vaginæ of asses;* in probably less pure forms in croup and bronchial polypus;† and, as I have seen it, in the renal pelvis, uterus, and bladder, in a case of calculus. In other cases we find corpuscles, which appear to differ from those in the exudations already described, only because of the peculiarly viscid fluid in which they lie. All are alike lymph-corpuscles; but in the one case they lie in a serous, in the other in a mucous fluid.

5. From these inflammatory products may be derived, by various degenerations of the fibrin, the flaky and molecular materials which commonly make morbid mucus look turbid and opaque; and by corresponding degenerations of the corpuscles—*i. e.* of the lymph-corpuscles, not of any normal cells or nuclei—the more frequent pus-cells, which make the transition to the pure pus secreted by mucous membranes in active inflammation.

Such degenerations are more frequent in the products of inflamed mucous surfaces than are any forms of development. Development of fibrin, I suppose, never happens here; but in the corpuscles some indications of it may be found, especially when the inflammation is very slight, as in the end of a bronchitis. If the gray, smoke-coloured mucus, expectorated at this time, be examined, it will be found that the peculiar colour, though commonly ascribed to the mixture of inhaled carbon, is due to the abundance of cells containing more or less numerous black pigment-granules. Particles of carbon, or soot, may by chance be present, but they only trivially contribute to the colour: it depends on the number of these pigment-cells, to which it is easy to trace the transitions from lymph or mucus-corpuscles. The chief stages of transition are seen in that the cells enlarge, become clearer, and acquire one or two clear oval nuclei; but, at the same time, minute, black granules, almost like those of melanotic cells, accumulate in them; and these, increasing in number and clustering, may at length fill the whole cell, while the nucleus disappears. Subsequently, the cell-wall may burst or dissolve, and the black granules be set free.

It may not be supposed that the black granules are in any way derived from

* Works, vol. iii, pp. 269, 341. Museum of the College, Nos. 83, 84.

† See Henle, in his Zeitschrift, t. ii, p. 178.

inhaled carbon, although it seems that this kind of mucus is most abundant in those who are exposed to atmospheres laden with coal-smoke; for the colour is completely destroyed by immersing the mucus in nitric acid, or solution of chlorine. The occurrence of such pigment-cells being, I believe, peculiar to the mucus of the air-passages, may be connected with the general tendency of inflammatory products to imitate the properties of the natural products of the inflamed part; for they closely resemble the black pigment-cells from which the lungs and bronchial glands derive their black spots, and streaks, and other marks. And, it may be added, that their peculiar abundance in the slightest forms of bronchitis, compared with their absence in acute cases, affords another example that the likeness of the morbid to the natural product is inversely proportionate to the severity of the inflammation.

LECTURE III.

Developments of the lymph-products of Inflammation—General meaning of "development:" limitations with which the term is to be used in regard to some tissues—Conditions of its occurrence in lymph—Necessity of the cessation of the inflammation—Conditions determining the direction of the development—Respective influences of the nature of the lymph itself, and of the tissue in or near which it is placed—Participation of the lymph in the properties of the normal blastema of the inflamed tissue—Developments into fibro-cellular, fibrous, epithelial, osseous, and other tissues—Developments of blood-vessels and lymphatics in lymph—Time requisite for development of blood-vessels.

In the last lecture I spoke of the lymph effused in inflammation as presenting certain primary forms, the fibrinous and corpuscular, from which, by their various developments and degenerations, are derived those other structures, which are characterised as products or results of inflammation; such as, through development, adhesions, indurations, and the like; through degeneration, pus, ichor, granule-cells, &c. It is in the biography of the lymph-product that much of the most important part of the pathology of inflammation is comprised; and if it were required to point out what, since Hunter's time, has contributed most to the progress of general pathology, one could scarcely hesitate to name the full appreciation of the fact, that lymph, like the other primary products of disease, has an independent life, and is of its own nature capable of appropriate development, degeneration, and disease. We may regard this as one of the best achievements of the observations which Schleiden and Schwann began to generalise; for, till it was clearly apprehended, the idea of a part being organisable meant scarcely more than that it admitted of being organised by the forces of the parts around it; that it could be built up by the arteries, and modelled by the absorbents, as a material, pliant, yet passive, in the hands of workmen. Hence was derived the erroneous direction of inquirers, which sought for blood-vessels as the essential characters of organic life in a part; and for their varieties of size, and number, and arrangement, as the measures of the ability and method of development.

But now, more truly, we may study lymph as having a life only so dependent on the blood and vessels as are all the tissues of the body—depen-

dent on them as conditions of existence, but not as sole arbiters of the method or direction of the vital transformations. And I venture to think, that the chief aim of our observations in the pathology of inflammation should be to learn, now, the exact relation in which the several products of inflammation stand to certain primary forms, as developments or degenerations from them. The catalogue of various corpuscles is already swollen to an extent that is confusing to those who are familiar with them, and repulsive to those who would begin to study them. It would be an easy task to increase it, and it might have a seeming of accuracy to do so; but what we want, is such a history of lymph, that we may arrange the components of this catalogue as indicating so many progressive stages of development, degeneration, or disease, in the primary products of inflammation. An attempt to construct such a history is the more advisable, for the sake of the illustration which it may afford to the history of normal structures. There are no normal instances in which we can see the materials that are effused for the nutrition of parts; but we may assume something concerning them and their progressive changes from the analogy of the materials that are more abundantly produced in inflammation.

I propose to devote the present lecture to some general,—and only a very general,—account of the development of lymph. But let me first state the sense in which the term development is here to be employed. By development of a part, speaking generally, is understood "the process by which an organ or tissue is first formed; or by which one, being already imperfectly formed, is so changed in shape or composition, as to be fitted for a higher function; or, finally, is advanced to the state in which it exists in the most perfect condition of the species."* In the use of this definition we shall find that we have adopted an arbitrary standard of comparison, on the assumption that the nearest approach to organic perfection is, in the human body, at the age of manhood. The assumption may be right on the whole; and a less arbitrary definition of development would, probably, be less useful; yet it may be observed, that in what we take for the period and standard of perfection, many parts that were once highly organised and active, have passed away, as the thymus gland; and some are, in certain respects, rather degenerated than developed, as the renal capsules and the bones.† We cannot unconditionally call that change a development, in which a part acquires a new chemical composition less remote from that of inorganic matter, as bone does when its chondrine is replaced by gelatine, and when this becomes impregnated with abundant saline and earthy matter, and leaves spaces filled with fat. Neither is that change altogether development, in which, as in the formation of ligamentous tissue, the organic life of the material becomes less active; or which, like ossification, can be accomplished as well in the feebleness of advanced life, as in an earlier period; as well in disease as in health. Development, in its highest sense, should imply not merely that a part becomes more fit for membership under the most perfect economy, but also that such fitness is acquired with greater complexity of chemical composition, or with greater evidence of formative or other organic power, or with greater difference from the structure or composition of lower beings. With none of these characters of development does such a process as that of ossification agree; and, therefore, when we call it "the development" of bone from cartilage, it should be with the understanding that the term is applicable only because bone is the proper material of the skeleton of the adult human body.

* See Lectures on Nutrition, &c., in the Medical Gazette, 1847.

† See Lectures on Repair, in Medical Gazette for 1849.

This distinction is important in the pathology of inflammation. In all true or complete development we may believe there is a larger expenditure of vital force than in any other organic act; for all such development, too, the external conditions need to be the most complete, and the least interfered with; such development is the highest achievement of the vital force—the highest instance of what might be understood as "increased action" in a part. It is in accordance with this that, in general, development is arrested in every severe disease, and that the residual capacity of repair, and other organic processes, is, in each species, inversely proportionate to the amount of original development, or to the distance between the embryonic and the perfect forms of the species.

To speak, therefore, of the development of inflammatory products, when already the normal development of the body is completed, may seem to imply the exercise of unusual vital force—the renewal, as it were, of the pristine embryonic vigour—and the existence of conditions more favorable for nutrition than even those of health are. But we may be led to judge differently, if it should appear that most or all of the so-called developments of inflammatory products are instances in which the tissues, though they are formed into the likeness of such as exist in the perfect human frame, yet acquire characters of lower organization than those they had in their earliest state. It will appear that they are such; and that however much the inflammatory products may become, by their changes, better suited for the general purposes of the economy, they are, in relation to their own condition, rather degenerated than developed. The changes that they undergo are, therefore, not always declaratory of a large expenditure of vital force; they are not such as the term "sthenic," applied to the inflammatory process, would suggest; not such as to imply that it is an exaggeration of any normal method of nutrition.

With this understanding, however, the changes I shall presently describe may be called developments of inflammatory lymph, or exudation; they are developments in the sense of being approximations to the likeness of the natural tissues of the adult human body.

In the last lecture I spoke, generally, of the conditions upon which depends the production of such inflammatory lymph as may be most apt for development. They are all such as favour the production of a lymph rich in fibrin, and that fibrin clear, homogeneous, elastic, tough, and filamentous.* But even such lymph as this may altogether fail to be developed, or may be arrested in any stage of its development, and turned into the downward course of degeneration, unless favorable external conditions are present with it. For the development of lymph, of whatever form, nearly all those conditions are requisite which are necessary for the normal development of the proper constituents of the body. It needs, in general, the due supply of healthy and appropriate blood, the normal influence of the nervous force, and, for the highest and latest forms of development, the normal condition of the proper elements of the affected part.

Now the existence of these conditions for the development of lymph implies a cessation of the inflammatory process, and a recovery from whatever originated or maintained the inflammation. So long as inflammation lasts, no high

* When fibrine is thus spoken of, one does not refer to the chemically pure fibrine which may be obtained by art, and which, most probably, could not be organized: but to the compound in which fibrine is naturally mixed with fatty, extractive, and saline matters, all of which, we may believe, are as necessary to right development as itself is.

development of the exudation already formed will take place; rather, fresh exudation will be continually formed, hindering the due process of development, and hindering it the more, because, as the general health suffers through the continuance of the disease, so the lymph freshly formed will be less and less prone to organization. We may see this illustrated in bad cases of pleurisy: the layers of lymph next to the pleura are always more prone to organization than the later formed layers that lie next the cavity; while within the cavity all the lymph may retain its fluid form, or may have degenerated into pus. So, more openly, we may see an illustration of the ill effects of abiding inflammation, in the healing of wounds by granulations. An inflammation ensuing or continuing in the wound hinders all development of granulation-cells, even though it may be too slight to hinder their formation, and may be favorable to the production of the ichor and pus-cells. We may truly say, that the conditions most favorable to the production of lymph are among the most unfavorable to its development, *i.e.*, to its complete and higher organization.

Even when the inflammation has ceased, and fresh exudation is not formed, still the development of the lymph is often prevented or retarded by want of some necessary condition. The blood-vessels, long dilated, may remain in a state of congestion, distended as if paralysed, and filled with slowly moving blood. In such a state—the state of "passive congestion"—so apt to follow more acute attacks, development will not happen in even well-disposed lymph. We have parallel facts in the tardy development of granulations on the legs, as in the healing of ulcers; and how much this depends on the defective movement of the blood is well illustrated by a specimen* appropriate to an observation of Mr. Hunter's. It shows three ulcers of the integuments of a leg; they are all granulating, and all healing; but their progress in healing has been inversely proportionate to the hinderances of the blood. The lowest of the three, that most distant from the heart, and of which the vessels were subject to the pressure of the highest column of blood, is least advanced in healing; while the uppermost of the three is most advanced, and is nearly cicatrized.

But let us suppose all the conditions for development provided: what will now determine the direction or result of the process? Into what tissues will the lymph be formed? Two chief things will determine this: first, the natural tendency of organizable lymph, produced in inflammation, is to form filamentous, *i.e.*, fibro-cellular or fibrous tissue; and, secondly, all lymph has some tendency to assume, sooner or later, the characters of the tissue in or near which it is seated, or in place of which it is formed.

The natural tendency of lymph to the construction of fibro-cellular or connective tissue, such as composes false membranes and adhesions, and most thickenings and indurations of parts, is shewn by the production of this tissue under all varieties of circumstances, and in nearly all parts; even in parts which, naturally, contain little or none. Thus, it is found in the brain, and in glands, as in the testicle; within joints, even where adhesions only pass from one articular cartilage to another; in the adhesions and thickenings of the most diverse serous membranes; in the thickenings of the most diverse mucous ones. And with all these, we have corresponding facts in the healing of wounds: all granulations, springing from what surface they may, tend, at least in the first instance, to the formation of filamentous tissue, such as we see uniting all parts in a stump; and a large proportion of subcutaneous injuries are repaired by similar tissue, whatever parts may have been divided.

* Museum of the College of Surgeons, No. 26, Catalogue, vol. i, p. 15.

And sometimes we may find instances of this development where the lymph is not even in continuity with any tissue, but floats free; as in ascites, or in effusions into joints.

But besides this general tendency, we may recognise in lymph a disposition to assume characters belonging to the part in which it was produced; so that, for instance, that about fibrous and ligamentous parts will be developed into peculiarly tough fibrous tissue; that about bone will become osseous; that in the neighbourhood of epithelium will form for itself an epithelial covering; and so on. I referred to this fact in the last lecture. The conformity of the developed lymph to the characters of the parts around it is usually ascribed to an assimilative force, exercised by those parts after the effusion of the lymph, and during its development. But it seems more probable that the tendency to conformity is from an original and inherent quality of the lymph; the material formed in the inflammation of each part partaking, from the first, in the properties of the natural products of that part, properties which, we know, determine the mode of formation in the natural process of nutrition, independently of any assimilative force.

As I stated in the last lecture, the degree in which lymph will partake of the properties of the natural product of the part will bear an inverse proportion to the severity of the inflammation, because, the more the normal conditions of nutrition are deviated from, the more will the material produced be unlike the normal product; and when the conditions are restored to the normal type, so will the organised product of inflammation constantly approximate more and more to the characters of the parts among which it is placed, or with which it has acquired membership. As scars improve, *i. e.* gain, gradually, more of the characters of skin, so do false membranes and the like acquire, by their own nutrition and development, more nearly the characters of the parts with which they are connected. Thus, false membranes in the serous cavities acquire a covering of epithelium, exactly like that which covers the original serous membrane, and their tissue becomes perfectly fibro-cellular: thus, too, adhesions of the iris may become black, apparently from the production of pigment-cells like those of the uvea: thus, too, in adhesions of the pleura, even when they are long and membranous, pigment may be formed as in the pulmonary pleura itself;* and thus many other products are gradually perfected, till we may come to doubt whether they be of normal or of morbid origin, so complete is the return from the aberrant action.

I will endeavour, now, to describe more particularly the modes of development into the several tissues that may be formed from lymph; and here I may refer to a part of the lectures I had the honour of delivering last year, in which I spoke of the two different materials produced for the repair of subcutaneous and of open wounds. The material for subcutaneous wounds appears to be a nearly unmixed fibrin, and is comparable in appearance, though not in origin, with the best forms of fibrinous lymph: the material for open wounds, such as granulations are formed of, consists almost exclusively of cells, and is equally comparable with the corpuscular lymph of inflammation. I then also described the respective methods of development, through which these two materials are transformed into the several permanent tissues of repair; and especially described how similar fibro-cellular and fibrous tissue may be formed from them both, by different routs of development. Such tissue is formed from the fibrinous material by the production of nuclei, constituting the "nucleated blastema," and from the granulation-cells, by their elongation and attenuation into filaments.

* As in No. 96, in the Museum of the College.

I believe that corresponding methods of development are observable in the two similar forms of inflammatory lymph; that the fibrinous becomes a nucleated blastema, in a stage previous to the formation of the fibro-cellular tissue; and that the corpuscular lymph is developed through the elongation of its cells.

Now, these are the recognised methods by which the normal fibro-cellular and fibrous tissues are developed; that through nucleated blastema is the method described more particularly by Henle; that through the elongation and attenuation of nucleated cells is the method first described by Schwann; and, probably, where this last prevails, we may assume that, very often, while cells are elongating into filaments, the intercellular substance, which is sometimes abundant, is assuming the same filamentous character. Such a combination of the two methods of development may be assumed for all those examples of lymph in which the fibrin and the corpuscles are mingled.

I need not, at greater length, describe these well-known methods of development. It may suffice to say, that after presenting transition stages in exact conformity with those observed in the normal development of the like tissues, the lymph of inflammation may become perfect fibro-cellular or fibrous tissue. The imitation, in adhesions of serous membranes, in the indurated ligamentous substance formed in and about muscles, tendons, and the like, is perfect; and if it should seem strange that disease should thus so closely imitate health, the explanation is, that this process in lymph is not disease. The lymph is, indeed, produced in inflammation, but it is developed in health when all the natural conditions of nutrition are restored.

It would be tedious, and quite unnecessary, to enumerate all the particular forms in which lymph developed into fibro-cellular and fibrous tissues may present itself. The general forms are—1. Adhesions, where the tissue is between free surfaces, and unites them; 2. Thickening, where the formation is in the substance of membranes; 3. Indurations, with or without contractions, where the tissue is formed in the substance of organs; 4. Opacities of parts that were transparent. All these are minutely described in the standard works on pathology and morbid anatomy.

The numerous varieties of tissue that may be included in the class of fibro-cellular and fibrous tissues comprise nearly all the normal structures that can be formed from the lymph of inflammation in man. Besides these, indeed, none are certainly formed except the structures of epithelium and bone.

Epithelial cells, we know, are formed of the cells of granulations in the "skinning" of sores; and they present a striking instance of the purpose observed in the healing process; for cells are here, as with design, formed into epithelium, while cells like them, more deeply seated, are being developed into filamentous tissue. The cells of lymph are so like those of granulations that we should be justified in believing that they also may be developed into epithelial cells, even if the opportunities of tracing the process were rarer than they are. We may sometimes find, in inflammation of serous membranes, recent lymph-cells presenting many characters indicative of development towards epithelium, flattening and enlarging, and acquiring circular or oval, clear nuclei. On old false membranes, epithelial cells are perfectly formed; but these may have been produced after the complete organisation of the membrane.

Bone is often formed from lymph. It may appear as a late transformation of lymph that has been organised into perfect fibrous tissue, as in the osseous plates that are sometimes found in the false membranes of the pleura, or in the pericardium. But in most of these there is not true bone, but an amorphous deposit of earthy matter, which is embedded in the fibrous tissue,

or which (as Rokitansky holds) is the residue of the degenerated and partially absorbed tissue.

The proper condition for the transformation of lymph into bone is that in which the exudation takes place in an inflammation seated in or near the periosteum. Such inflammations have been called "ossific;" and the museum of the College, like every other, abounds with specimens of their various results. The second and fifth volumes of the catalogue of the museum contain such detailed descriptions of these specimens, that I need only mention some general principles which they illustrate.

We have evidence enough that superficial deposits of new bone are formed as well after inflammation of the periosteum as after inflammation of the bone itself; or even more constantly. And we might expect such a result, knowing, from Dr. Sharpey's and Kolliker's researches, that the growth of bones in circumference is accomplished by the ossification of successive layers of fibrous tissue, like the periosteum, and that such fibrous tissue is one which the developed products of inflammation may imitate. It is to the ossification of such fibrous tissue, formed (though probably only in rudiment) in periostitis, that we may ascribe the greater number of superficial formations of new bone, and more especially the thin plates of bone that are sometimes imbedded in the periosteum, or even on its exterior, and completely detached from the surface of the bone.

It is also worth observing how characteristic of different diseases are certain formations of new bone produced in inflammations. The pustules of variola, or the vesicles of herpes, are scarcely more characteristic of those diseases than are the hard nodules of cancellous bone clustered about the articular borders of bones that have been the seat of chronic rheumatism,* or the porous, friable, dirty, and readily ulcerating thin layers formed on the shafts in syphilis,† or the circumscribed, flat elevations of bone, formed under old ulcers of the integuments.‡

I am not aware that the mode of ossification which prevails in any of these cases has been minutely studied; but we may believe the ossification of inflammatory products to be essentially similar to those observable in the repair of fractures. It is probable that cartilage is very rarely, if ever, formed in inflammatory lymph; for it seems to be formed in the repair of fractures only when the conditions are more favorable than they are likely to be in any inflammations. Probably, therefore, the lymph is more or less developed towards the fibrous tissue when it ossifies; and, as in the repair of fractures, so here, we may believe that ossification may be postponed till the fibrous tissue is quite formed, or that it may ensue in the rudimental state of the tissue, whether in a nucleated blastema, or in cells like those of granulations.§

Such are the developments of which lymph appears capable in man; and I doubt whether any other tissues are ever formed from its materials. All the instances in which it has been said that transversely striated muscular fibres were formed, seem questionable. The formation of the tissues of the internal membrane of blood-vessels, is probably accomplished by development of fibrin-deposits from the blood flowing in the vessels whose walls are thus thickened; at least, their formation from lymph deposited from the *vasa vasorum*, as in phlebitis, has not been nearly proved.

* As in 572, and others, in the Museum. † As in Nos. 628 to 631.

‡ As in Nos. 581 to 585, and others.

§ These subjects are more fully treated in the 'Lectures on Repair' published last year.

The formation of the proper blood-vessels of organising lymph is, I believe, not from the materials of the lymph itself, but by outgrowth from the vessels of the adjacent part; but on this point I must say something more, if only because different opinions are held by some of the highest authorities.

The question is, whether the blood-vessels of organising lymph are formed entirely of the material of the lymph, and, as it were, by its own power of development, or whether they are outgrowths from adjacent natural or original vessels, which, as the expression is, shoot out into the lymph. Both these modes of formation of blood-vessels are observable in the natural tissues, while they are in process of development; the new vessels which are formed in the interstices of the embryo tissues, being usually produced by development of some of the interstitial cells; while those which are formed at borders or surfaces appear as usually to be produced by outgrowth from subjacent vessels.* Mr. Hunter, guided by the analogy of the formation of the first blood-vessels in the germinal area of the embryo-chick, was induced to think they must be similarly formed in lymph; and that, from its materials, both blood and enclosing vessels may be constructed, as it were, in an isolated system, which, at a later period, opens into communication with the vessels and moving blood of the adjacent parts. Rokitansky, and many others, hold the same opinion; while Mr. Travers, Mr. Quekett, and many others, maintain that the lymph forms neither vessels nor blood, but receives those that are projected into it from the parts on or in which it is placed. With this view I fully concur, resting on several grounds:—

1. The direct observations supposed to prove that blood is formed in lymph, are very liable to fallacy, through the facility with which blood may be accidentally mixed with the lymph, in consequence of hæmorrhage during life or after death, or in the preparation of the specimens. Where these sources of fallacy have been avoided, I have never seen anything suggestive of a transformation of lymph into blood.

2. The development of blood from tissue-cells is limited naturally to the earliest period of embryo-life, as if it needed the greatest amount of force for development: afterwards, blood is not formed except through a long process of elaboration, and with the aid of many organs. Its formation, therefore, in the mal-conditions of inflammation is very improbable.

3. In no specimen of inflammatory lymph have I seen appearances of transitions from lymph-cells to blood-cells, such as we may see in the lymph of the lymphatics, both before and after it is poured into the blood-vessels.

4. Neither in any lymph have I seen appearances of such stellate cells as the interstitial blood-vessels of the early embryo are formed from; nothing comparable with them ever come into view.

5. In the formation of vessels for granulations and the walls of chronic abscesses, all is favorable to the belief that they grow up from the blood-vessels of the adjacent parts; and there are no structures to which the lymph bears so close analogy as it does to these, or to which it is so likely to be conformed in the production of its vessels.

On the whole, although direct observations are wanting, I think we may conclude that all the vessels of inflammatory lymph are formed by outgrowth from adjacent vessels. The process we may believe to be similar to that seen in the formation of vessels along the border of the growing tadpole's tale, or at the edges of the healing wound in the frog's web. On certain points of some vessel slight lateral dilatations appear: these extending, acquire the form of pouches or diverticula, which, continuing to grow out, at length bend

* See further, in the 'Lectures on Repair.'

towards each other, meet, and coalesce, so as to form a new vascular loop, an outgrowth from the vessel on which they arose. From such a loop a new one may be formed: and by similar coalescing outgrowths channels may be formed between adjacent vessels, or when two surfaces of lymph or granulations come in contact, their several vessels may be thus, by intermediate projections, joined. Thus granulations are united in the healing of wounds, by secondary adhesion; and thus the adhesions formed in inflammations of serous membranes introduce anastomoses between the visceral and parietal blood-vessels.

In the first instance, the blood-vessels of lymph appear to be usually very numerous and thin-walled, therefore easily bursting, or dilated by congestions during life, or in the attempt to inject them after death. The College collection contains an extremely beautiful specimen of soft recent lymph, from the pericardium of a cheetah, the vessels of which, injected by Mr. Quekett, appear as numerous and closeset as those of some of the more vascular mucous membranes. They present occasional slight and gradual dilatations, especially when they branch or anastomose. But after an uncertain time, as the lymph becomes more highly organized, so its vessels waste, and diminish in number; and while it acquires the proper structure of the fibro-cellular tissue, so it descends to the low degree of vascularity of that tissue. The vessels of false membranes are usually rather wide apart, long, slender, and of uniform diameter. In all these particulars they differ from those of more recently vascularized lymph; and their changes are, in these respects, parallel with those of the vessels of granulations, during the gradual formation and perfecting of scars.

Perhaps the most perfect instance of the conformity with the natural tissues of the body to which the developed lymph can attain, is manifested in its acquiring a supply of lymphatic vessels. We owe the knowledge of the lymphatics of false membranes to the masterly skill of Professor Schroeder van der Kolk, whose preparations of them are described and represented by his pupil, Dr. de Lespinasse.* Beautiful networks of lymphatics, with their characteristic beaded forms, and abundant anastomoses, are shown traversing adhesions extending between two lobes of a lung, and between a liver and the peritoneal covering of the diaphragm; while yet closer networks are seated in the thickened and opaque-white substance of the pleura, or of false membrane covering it, beneath the adhesions.

It seems to be in only the most perfect state, and when blood-vessels have long existed, that lymphatics are formed in false membranes. In recent lymph S. van der Kolk has never succeeded in injecting any; and we can only suppose that they are, like the blood-vessels, produced by outgrowth from the lymphatics of the membrane with which they are connected.

The time in which these complete developments of lymph may be accomplished must vary so much, according to the circumstances of the cases of inflammation, that perhaps no reasonable estimate of it can be made. The experiments of Villermé and Dupuytren,† upon dogs, assign twenty-one days as the earliest time in which new vessels are formed; but I am disposed to agree with Dr. Hodgkin, that a shorter time is sufficient. On the other hand,

* Spec. Anat. Path. de Vasis novis Pseudo-membranarum, 8vo. Daventriæ, 1842, figs. iii, iv.

† Quoted by Dr. Hodgkin, in his Lectures on the Morbid Anatomy of the Serous Membranes, p. 39.

I am sure that the supposition of their being formed in one or two days is incorrect. The principal case in support of this opinion is that recorded by Sir Everard Home; but the specimens preserved in the College museum* show that he was deceived as to the true nature of the case. He says† that he operated for strangulated hernia in a man, and found in the sac a portion of ileum, which was healthy, except in that its vessels were turgid with blood. The patient died twenty-nine hours after the operation; and on examination "several small portions of exuded coagulated lymph" were found adhering to the intestine that had been protruded. When the vessels of the intestine were injected, the injection passed into vessels in all these portions of supposed lymph, each "having a considerable artery . . . . and a returning vein." Sir Everard Home, therefore, concludes "that the whole operation of throwing out coagulable lymph, and supplying it with blood-vessels after it had become solid, was effected in less than twenty-four hours."

Now, one of these specimens was figured by Mr. Hunter‡, "to show a small portion of coagulating lymph . . . . which is supplied with vessels;" but neither here, nor in his manuscript catalogue, does he allude to a probability of the vessels having been formed in twenty-four hours, although, had he believed it, he would scarcely have failed to record it.§ An examination of the specimens shows that the small shredlike portions of membrane, attached by little pedicles to the intestine, have not the appearance of recently coagulated lymph, but are fully organized, with traces of filaments and fat-cells. They are also very regularly disposed, at distances of from half an inch to an inch from each other, and are nearly all placed in two rows, on each side of the intestine, about half an inch from the attachment of the mesentery, like very minute appendices epiploicæ, such as are occasionally met with on the coats of the small intestine. Whether they be such appendices or not, it is in the highest degree improbable that they were formed after the operation; especially since they are too minute and delicate to have prevented the intestine from exhibiting, when exposed in the sac, the natural polished appearance of its surface.

I am not aware of any other case adapted to prove the earliest period at which blood-vessels may be formed in lymph. Serous surfaces may, indeed, become adherent in twenty-four hours, but this does not imply vascularity of the lymph between them; it is simply adhesion by the coaptation of the intermediate lymph.

LECTURE IV.

Degenerations and diseases of the lymph-products of inflammation.—General account of degenerations, as normal changes to which all living parts are prone; their relations to the other modes of natural nutrition, and their purposes; their difference from diseases.—Varieties of normal degenerations.

* Nos. 81 and 82 in the Pathological Museum.

† In his Dissertation on Pus, p. 41. The whole case is given in the College Catalogue, vol. i, p 37.

‡ On the Blood, pl. vi, fig. 2.

§ In the same work (p. 350) he speaks of nine days as a short time for the complete organization and adaptation of adhesions.

Characters of these degenerations when they affect inflammatory products in their several stages of development.—Degenerations of fibrin; its withering, liquefaction, disintegration, fatty, calcareous, and pigmental degenerations.—Degenerations of lymph-corpuscles; their withering, degeneration into granule-cells, and disintegration; their calcareous and pigmental degenerations; formation of various pus-cells, and their subsequent degenerations, as observed in the contents of chronic abscesses.—Degenerations of adhesions, and other examples of fully organised lymph.—Diseases of the products of inflammation.

In the last lecture a general history was given of the chief developments of the lymph exuded in the inflammatory process. I purpose now to tell a corresponding history of its degenerations; and herein to describe what appear to be the transitions from the ordinary forms of lymph in its primary state—its fibrin and its corpuscles—to those many lower forms enumerated as molecular and granular matter, as pus-cells, granule-cells, inflammatory globules, and the rest. I said that, for the development of lymph produced in inflammation, it is requisite that the inflammation shall have ceased, and the conditions of healthy nutrition be restored. In the failure of this event, if the inflammation continue, or the due conditions of nutrition be in any way suspended, then, instead of development, degeneration may ensue. And this may happen in any of the stages of formation which I described in the last lecture; it may happen alike to the rudimental fibrin, or to the earliest lymph-cell, or to either, in any part of its progress to complete development.

Allow me first to illustrate generally what is to be understood by degeneration, as distinguished from disease, and to point out some of the larger principles which the very active inquiries of late years may enable us to enunciate concerning degenerations.

The usually admitted modes of normal operation of the nutritive processes are three—namely, development, growth, and maintenance or assimilation.* The accepted meanings of these terms are known; and I need only say concerning them that the maintenance of a part by assimilation must not imply the maintenance of an unchanged state, but a series of minor progressive changes slowly worked in the part, and consistent with that exercise of its functions which is most appropriate to the successive periods of its existence.

But to these three we should add, as another normal method of nutrition, the process of natural degeneration, such as occurs in advanced life. To degenerate and die is as normal as to be developed and live; the expansion of growth, and the full strength of manhood, are not more natural than the decay and feebleness of a timely old age—not more natural, because not more in accordance with constant laws, as observed in ordinary conditions. As the development of the whole being, and of every element of its tissues, is according to certain laws, so is the whole process regulated, by which all that has life will, as of its own workings, cease to live. The definition of life that Bichat gave is, in this view, as untrue as it is illogical. Life is so far from being "the sum of the functions that resist death," that it is a constant part of the history of life that its exercise leads naturally to decay, and through decay to death.

Of the manner in which this decay or degeneration of organisms ensues we know but little. Till within the last few years the subject of degenerations was scarcely pursued; and, even of late, the inquiries, which ought to

* Lectures on Nutrition, in Medical Gazette for 1847.

range over the whole field of living nature, have been almost exclusively limited to the human body. The study of development has always had precedence in the choice of all the best workers in physiological science. They who have devoted many years of laborious thought and observation to the study of the changes by which the living being is developed from rudiment to perfection, have given fewer hours to the investigation of those by which, from that perfection, it naturally descends into decay and death. Almost the only essays at a general illustration of the subject have issued in the ridiculous notion that, as the body grows old, so it retrogrades into a lower station in the scale of animal creation. The flattened cornea is supposed to degrade the old man to the level of the fish; while the *arcus senilis*, by a fancied correspondence with an osseous sclerotic ring, maintains him in the eminence of a bird; his dry, thick cuticle, makes him like the pachydermata; and his shrivelled spleen approximates him to the humility of the mollusk. One can only commend such day-dreams to the modern supporters of the doctrine of transmutation of species; and they might, indeed, form an appropriate supplement to their scheme, if they would maintain that, in these latter days, our species is destined to degenerate into lower and yet lower forms, descending through the grades by which, in bygone times, it ascended towards its climax in humanity.

One cannot but wonder at the comparative neglect with which wiser men than these philosophers have treated a study so full at once of interest and of importance, as this of the natural degeneration of the body. It could not be without interest to watch the changes of the body, as life naturally ebbs,—changes by which all is undone that the creative force in development had achieved,—by which all that had been gathered from the inorganic world, impressed with life, and fashioned to organic form, is restored to the masses of dead matter,—to trace how life gives back to death the elements on which it had subsisted,—the progress of that decay through which, as by a common path, the brutes pass to their annihilation, and man to immortality. Without a knowledge of these things, our science of life is very partial, very incomplete, and the study of them would not lack that peculiar interest which appertains to inquiries into final causes; for all the changes of natural decay, or degeneration, in living beings, indicate this purpose and design—that, being gradual approximations to the inorganic state of matter, they lead to conditions in which the elements of the body, instead of being on a sudden and with violence dispersed, may be collected into those lower combinations in which they may best rejoin the inorganic world; they are such, that each creature may be said to die through that series of changes which may best suit it, after death, to discharge its share in the economy of the world, either by supplying nutriment to other organisms, or by taking its right part in the adjustment of the balance always held between the organic and the inorganic masses.

Nor would the student of the design of these degenerations do well to omit all thought of their adaptation, in our own case, to the highest purposes of our existence. When, in the progress of the "calm decay" of age, the outward senses, and all the faculties to which they minister, grow dim and faint, it may be on purpose that the Spirit may be invigorated and undisturbed in the contemplation of the brightening future; that, with daily renewed strength, it may free itself from the incumbrance of all sensuous things, or retain only those fragments of thought, or intellectual knowledge, which, though gathered here on earth, yet bear the marks of truth, and, being Truth, may mingle with the truth from Heaven, and form part of those things in which Spirits of infinite purity and knowledge may be exercised.

Moreover, the changes of natural degeneration in advanced life, have a

direct importance in all pathology, because the right understanding of them may guide us to the interpretation of many anomalies which, while they occur in earlier life, we are apt to call diseases, but which are only premature degenerations, and are to be considered, therefore, as defects, rather than as perversions of the nutritive process, or as diseases only in consideration of the time of their occurrence.*

In this view, it will be a great help to our knowledge of disease, if we can determine and arrange all the changes that mark the progress of natural decay or degeneration, *i. e.* the decay of old age, or of naturally abrogated functions. They seem to be these:—1. Wasting, or withering; the latter term may imply the usually coincident wasting and drying of a tissue. 2. Fatty degeneration, including many of what have been called granular degenerations. 3. Earthy degeneration, or calcification. 4. Pigmental degeneration. 5. Thickening of primary membranes.

Of each of these let me cite one or two examples.

Of *withering*, or wasting and drying, which is perhaps the commonest form of atrophy, we have abundant instances in the emaciation of old age; in which, while some parts are removed by complete absorption, others are only decreased in size, and lose the succulency of earlier age.

Of the *fatty degeneration* in senility, we have the best proofs, as to its general occurrence, in the increasing obesity which some present at the onset of old age, and in the general fact that there is more fatty matter in all the tissues, and most evidently in the bones, than there is in earlier life; while, for local senile fatty degeneration, we find the *arcus senilis*, or fatty degeneration of the cornea, according to the interesting discovery by Mr. Canton,† and the accumulating fatty or atheromatous degenerations of arteries.

The *calcareous degeneration* is, in old age, displayed in the gradually increasing proportion of earthy matter in the bones; in the extension of ossification to cartilages, which, in all the period of vigour, had retained their embryonic state; and in the increasing tendency to earthy deposits in the arteries and other parts.

The *pigmental degeneration* has its best instances in the gradually accumulating black pigment spotting and streaking the lungs; in the slate or ash-colour which is commonly seen in the thin mucous membranes of the stomach and intestines of old persons;‡ and in the black spotting of the arteries of some animals, in which pigment seems to hold the place of the fatty degenerations so usual in our own arteries.§

Of the *thickening of primary membranes* we have indications in the usual thickening of the tubules of the testes, and, I think, of some other glands, as their function diminishes in old age; in the opaque white thickening of the primary or inner membrane of nearly all blood-vessels; and in the thickening of the walls of cartilage-cells in some forms of ossification. To this, also, we have a strong analogy in the thickening of the cell-walls of the heart-wood of plants.

* One can here have in view only the cases in which the degeneration affects the whole, or some considerable part of an organ; for it is very probable that some of the degenerations which we see *en masse* in the organs of the old, or in the seats of premature defect of nutrition, are the same as occur naturally in the elementary structures of parts, previous to their being absorbed and replaced, as it were by one particle at a time, in the regular process of nutrition.

† Lancet, April, 1850.

‡ It is remarkable that this accumulation of pigment should be occurring in any set of organs while pigment is disappearing from other parts, such as the hair.

§ I have seen a similar black pigmental degeneration of the minute arteries of the human brain.

Such are the changes which, singly or in various combinations, constitute the most evident degenerations of old age in man. Their combinations give rise to numerous varieties in their appearance, such as, *e. g.*, the increase of both fatty and earthy matter in old bones; the fatty degeneration and wasting of the pulmonary membrane in the emphysematous lungs; the dry, withered, and darkly tinged epidermis; the coincident fatty and calcareous deposits in old arteries. But I need not dwell on these, nor on the conditions which determine the occurrence of one rather than another mode of degeneration; for these I cannot tell. Let me rather observe that, taken singly, all the changes I have enumerated display certain characters, which should be present in every process that may be justly called a degeneration, and distinguished from disease. In all true degenerations, these, or most of these, following characters should concur:—

First, and before all others, it should be a change naturally and usually occurring, in one or more parts of the body, at the approach of the natural termination of life; or, if not then beginning, yet then regularly increasing.

2. It should be a change in which the new material is of lower chemical composition, *i. e.*, is less remote from inorganic matter than that of which it takes the place. Thus, *e. g.*, fat is lower than any nitrogenous organic compound, and gelatine lower than albumen, and earthy matter lower than all these.

3. In structure, the form should be less developed than that of which it takes the place: it should be either more like inorganic matter, or less advanced beyond the form of the mere granule or the simplest cell. Thus the approach to crystalline form in the earthy matter of bones, and the crystals in certain old vegetable cells, are characteristic of degeneration; and so are the granules of pigment and of many granular degenerations, and the globules of oil that may replace muscular fibres or the contents of gland-cells.

4. In function, the part should have less power in its degenerate than in its natural state.

5. In its nutrition, it should be the seat of less frequent and less active change, and without capacity of growth, or of development.

Such are the characters of degenerations; and there are many things which show that the assumption of these characters is to be ascribed to a defect, not to a perversion, of the vital force, or of the conditions of nutrition.

Thus (*a*) these are all apt to occur in a part of which the functions are abrogated; a motionless limb wastes or becomes fatty as surely as an old one does. (*b*) They often occur, too, in parts that fail to attain the development for which they seemed to be intended. Thus, *e. g.*, fatty degeneration usually ensues in the cells of unfruitful Graafian vesicles.* (*c*) They bear also a certain general analogy to the changes that ensue in some of the materials that are habitually excreted from the body; in the construction or composition of which materials one seems to have an instance of the gradual supervention of the ordinary or imitable processes of chemistry. (*d*) Again, they display living parts tolerating the presence and incorporation of inorganic or dead matter; fat being commonly infiltrated about degenerate cells and membranes, and earthy matter with it, even in the crystalline form. (*e*) And, lastly, and perhaps most clearly, the origin of degenerations from defective, rather than from perverted, conditions of nutrition, appears in the fact that one, at least, of them may be produced artificially. The fact observed by Dr. Quain,† that the fatty degeneration of muscular fibre is closely imitated when healthy dead

* Reinhardt in Traube's Beitrage, B. i.

† Lancet, Report of Medico-Chirurgical Society, April, 1850.

muscle is placed in dilute acid, suggests, as the formation of adipocire did to Dr. Williams,* that, during life, the change of the protein-compound, which leaves the residuum of fatty matter, is one of common, that is, of imitable chemistry. Now we may be sure that where this chemistry prevails, there the forces or conditions of life are in defect.

From the whole we may safely hold that, as the changes to which the several tissues are naturally prone in old age are the results of defect, not of perversion, of the nutritive process, so are the corresponding changes when they happen in earlier life; although, through their appearing prematurely, they may in this case bear the features of disease. Therefore we should be prepared to separate from the catalogue of diseases all those changes in which we find the marks of degeneration alone; for the distinction of degeneration from diseases must be an essential, though often it may be an obscure, one. The one is natural, though it may be premature; the other is always unnatural: the one has its origin within, the other without, the body: the one is constant, the other as various as the external conditions in which it may arise: finally, to the one we are prone, to the other only liable.

I will now proceed to describe what, in accordance with the foregoing observations, appear to be the chief degenerations of inflammatory products. As I have said, the degeneration may begin in any period of the formation of the lymph, as well in its rudimental as in its fully organised state; and that which determines for degeneration rather than development, seems always to be the continued suspension of the conditions of nutrition.

The following appear to be the chief degenerations of the fibrin of lymph, or of the materials derived from its earliest stages of development:—

1. It may wither—wasting, and becoming firmer and drier, passing into a state which Rokitansky† has designated *horny*. One sees the best examples of this change of fibrin in the vegetations on the valves of the heart, or in the large arteries, when they become yellow, stiff, elastic, and nearly transparent.‡ The fibrin may, in this state, show no marks of development into tissue, but may have all the simplicity of structure of ordinary fibrin, being only drier and more compact. A similar character is nearly acquired when lymph is deposited over a lung which is extremely compressed in empyema, or in hydrothorax.§ The tough dry lymph that here forms the grayish layer over all the lung is not always developed, though it may adhere firmly: it is withered, wasted, and dried (as the lung itself may be), in consequence of the compression.

2. Fibrin is subject to a degeneration which we may compare with fatty degeneration. In the coagula, or solid parts of effusions that are found in the lower forms of inflammation, or in very unhealthy persons, the fibrin is usually not clear and uniform, and filamentous, but rather opaque or turbid, nebulous or dotted, presenting just such an appearance as marks the earliest stages of fatty degenerations in the muscular fibrils. In such coagula as these, also, one sees, not unfrequently, minute, shining, black-edged particles, which we may know to be drops of oil; while some general alteration in the com-

* Principles of Medicine. Rokitansky has always held that the fatty and earthy matters of degenerations are residues of the transformations which the higher compounds of the tissues have undergone; part of the products of the transformation being absorbed, and part (at least in many cases) remaining in the place. See, also, the Lectures on Nutrition, p. 40.

† Vol. i, p. 229.

‡ As in a case in the Museum of St. Bartholomew's, ser. xii, 55.

§ As in the College Museum, No. 1756 A, and 1757.

position of the fibrin is shown by its not being made transparent with acetic acid. In all such cases as these the fibrin is also very soft, and easily broken: it is devoid of all that toughness and elasticity which is the peculiar characteristic of well-formed fibrin; and by breaking it up, one may see the meaning of what one so often finds in the lowest forms of inflammatory exudation, such as occur in erysipelas and typhus,—namely, films and fragments of molecular and dotted substance, floating in fluid that is made turbid by them, and by abundant minute molecules and granules and particles of oily matter. These represent the disintegration of fibrin that has degenerated after clotting, or has thus solidified in an imperfect coagulation. Of such changes, also, an excellent instance is presented in the softening and disintegration of the clots within the heart, which Mr. Gulliver* has described, and which might be studied for the illustration of the corresponding changes in inflammatory lymph.

We have examples of numerous varieties of this degeneration and disintegration of fibrin formed in inflammation. It is a principal constituent of most of what has been called "aplastic lymph," in inflammation of the serous membranes. Similar fibrin occurs, mingled with mucus, in the severer inflammations of the mucous membranes. And to the same source we may trace most of that molecular and granular matter which is usually mingled with pus formed by the suppuration of inflammatory indurations—with the variously changed corpuscles of "scrofulous matter"—or with the granule-cells, and other corpuscles of pneumonia, and the like inflammations. At least, this disintegration of fibrin is probably a frequent origin of such molecular matter; while the quantity of fatty matter present in pus and the products of pneunomia, and its gradual increase,† while pus is retained in an abscess, confirm the view, that the changes here described are of the nature of fatty degeneration.

When we see how a large mass of inflamed hard substance will become fluid, as it suppurates, and this with scarcely any, if any, increase of bulk, we may believe that another change of which fibrin is capable in degeneration is its liquefaction. In such a swelling as a hard bubo, or a hard chronic abscess, we may be nearly sure there is coagulated fibrin, both from the general circumstances of the inflammation, and because neither corpuscles alone, nor fibrin in the liquid state, would give such hardness. The suppuration, therefore, of such a swelling, if without increase of bulk, can hardly be explained, except on condition of the fibrin, which had coagulated, becoming again liquid. The occasional liquefaction of clots out of the body,‡ makes this more probable; but I am not sure that it can be proved by any more direct facts.

I may here refer to a point of some practical importance connected with these forms of degeneration of lymph, whether affecting fibrin or corpuscles. When the fibrin has withered and become dry, it is probably put out of the capacity of being further developed, and is rendered passive for further harm or good, except by its mechanical effects. But the molecular and fatty degenerations are yet more beneficial, in that they bring the lymph into a state favorable to its absorption, and, therefore, favorable to that which is termed the "resolution" of an inflammation in which lymph has been already formed. I suppose it may be considered as a general truth, that the elements of a tissue cannot be absorbed so long as they retain their healthy state. There

* Medico-Chirurgical Transactions, vol. xxii.

† Gerber, Allgem. Anatomie, 48.

‡ As in cases by Nasse and De la Harpe, quoted by Henle, in his Zeitschrift, B. ii, p. 169. See also Virchow on the same subject, in the Zeitschrift, B. iv. Henle refers to this same liquefaction the changes that ensue in emitted semen.

is no power of any absorbent vessels that can disintegrate or decompose a healthy portion of the body; for absorption, there must be not only an absorbing power, but also a previous or concurrent change, as it were a consent, in the part to be absorbed; so that it may be reduced (or, rather, may reduce itself) into minutest particles, or may be dissolved. And this change is probably one of degeneration, not death, in the part; for dead matter is rather discharged from the body than absorbed.

Now there are some facts which indicate the probability that the fatty degeneration is that which commonly precedes the natural absorption of many normal parts; or, rather, that, in the change which they undergo before absorption, fatty matter is one of the products, and that the principal evident difference between the atrophy of a part which is manifested by its wasting, and the atrophy which is manifested by fatty degeneration, is, that the fatty matter which is absorbed in the former case, is retained in the latter. However this may be, it is certain that the disintegration and fatty degeneration of the fibrin-products of inflammation bring them into a state most favorable for absorption; indeed, one may see in fibrin thus changed many things which, in regard to the fitness for absorption, make it parallel with chyle.* Of such absorption of fibrin we may find many instances. In rheumatic iritis we may believe the lymph to be fibrinous; but we see its complete absorption taking place; and the recent observations of Dr. Kirkes on the rarity of adhesions of the pericardium, in comparison with the frequency of pericarditis,† may be in the same manner explained. In rheumatic pericarditis we may be sure fibrin is effused; and the observed friction-sound has, in at least one case, proved its coagulation; yet in this case, when death occurred four months afterwards, scarce a trace of fibrin was found in the pericardium; it had been absorbed, and the degeneration I have been describing was probably the preparation for its absorption.

3. I am not aware of any direct proof of the calcareous degeneration ensuing in the fibrinous part of the inflammatory exudation; but we have the strongest evidence from analogy for believing that this change may be a frequent one. For there are numerous instances of calcifications of fibrin within the vessels—as, *e. g.*, in the ordinary formation of phlebolithes from clots of blood, in the branching and irregular pieces of bone-like substance found in obliterated veins, and in the lumps and grains of substance like mortar imbedded in fibrinous deposits in the heart's valves. We can, therefore, hardly doubt that the fibrin, even before development, may take part in formations of earthy matter in inflammatory products; but the calcareous degeneration is much more frequent in purulent fluids, and in the later developments of lymph.

4. Lastly, we have examples of the pigmental degenerations of fibrinous lymph in the various shades of gray and black which often pervade the lymph formed in peritonitis, and which are produced, not by staining or discoloration of the blood by intestinal gases, but, according to Rokitansky, by the incorporation of free pigment-granules.

Such appear to be the degenerations of the fibrinous lymph of inflamma-

* See also the ingenious contrast of the progress of chyle and the regress of pus drawn by Gerber, in his Allgem. Anatomie, p. 49.

One assumes that the absorption of visible particles is possible here, as it is commonly assumed to be in chyle; but the passage of such particles through the membranous walls of blood-vessels is only imaginable. Can it be that they pass into the vessels by being incorporated in the tissue adjacent to them, and then by being gradually shifted into them in the mutations of particles that are effected in nutrition?

† Medical Gazette, April, 1849.

tion; such at least are the changes in it which we may refer to defects in its power or conditions of nutrition, because they correspond with changes that may be traced in the gradual degenerations of old age. I need hardly say, that it is only by such correspondence that we can interpret them; for, when we find them, it is altogether beyond our power to tell, by direct observation, whether, or in what way, the conditions of nutrition were defective.

The corpuscular constituents of lymph, in any of their stages of development, may retrograde, and then present degenerations corresponding, and often concurrent, with those which I have just described.

a. Their withering is well seen in some forms of what is called scrofulous matter, such as occur in chronic and nearly stationary scrofulous enlargements of lymphatic glands. In the dull ochre-yellow-coloured and half dry material imbedded in such glands, may be found abundant cells, collapsed, shrivelled, wrinkled, glistening, and altogether irregular in size and form. One might suppose them to be the remnants of pus dried-up, or the corpuscles of chronic tuberculous matter, if it were not that among them are some with nuclei shrivelled like themselves, and some elongated and attenuated, which are evidently such as withered after they had been developed into the form of fibro-cells; into which form it is certain that neither pus-cells nor tubercle-cells are ever changed.

These are the best examples of withered lymph-corpuscles; but they may be also found in the pus of chronic abscesses, especially, of course, in that of such abscesses as ensue by suppuration of lymph-deposits like those just referred to. It may be hard sometimes to say whether corpuscles in these cases may not be pus-corpuscles shrivelled up: but, on the whole, I am inclined to believe that the shrivelled corpuscles of the pus of chronic abscesses are usually derived from the lymph, in which, having withered, they had become incapable of further change.

b. The fatty degeneration of lymph-cells is shown in their transition into granule-cells.* We owe the first demonstration of this to the excellent observations of Reinhardt,† who has also shown how, by similar degenerations, corresponding forms of granule-cells may be derived from the primary cells of almost all other, both normal and abnormal, structures.

This method of degeneration appears peculiarly apt to occur in the inflammations of certain organs—as, especially, the lungs,‡ brain, and spinal cord; but it may be found occasionally prevalent in the lymph of nearly all other parts, and in the granulations forming the walls of abscesses or of fistulæ. It may occur alike in the early forms of lymph-cells, and after they have already elongated and attenuated themselves, as for the formation of filaments, and after they have degenerated into pus-cells. The changes of transition are briefly these:—The lymph-cells, which may have at first quite normal characters, such as I have assigned to "primordial cells," present a gradual increase of shining black-edged particles, like minute oil-drops, which accumulate in the cell-cavity, and increase in number, and sometimes in size also, till they nearly fill it. The fatty nature of these particles is proved by their solubility in ether: and their accumulation is attended with a gradual enlargement of the cell, which also usually assumes a more oval form. Moreover, while the

* The exudation-cells of Dr. Hughes Bennett; the inflammatory globules of Gluge.

† Traube's Beitrage, B. ii, 217, e. s. Observations similar to part of those of Reinhardt were made independently by Dr. Andrew Clark. (See Medical Gazette, vols. xlii, xliii.)

‡ Dr. Gairdner describes also the formation of granule-cells from the epithelium-cells in pneumonia. (Contributions to the Pathology of the Kidney, p. 20.)

fatty matter accumulates, the rest of the contents of the cell becomes very clear, so that all the interspaces between the particles are quite transparent; and coincidently with all these changes, the nucleus, if any had been formed, gradually fades and disappears.

I need hardly say, that in these particulars the changes of the lymph-cells, (which may also occur when they have been already developed into the form of fibro-cells,) correspond exactly with those of the fatty degenerations observed in the cells of the liver or kidney, or in the fibres of the heart. There can be hardly a doubt of the nature of this process; and it presents an important parallel with the similar changes described in fibrin. For, we may observe, first, that where this degeneration is apt to occur in lymph, it is least likely to be developed. A proper induration and toughening of the lungs and brain, such as might happen through development of the products of inflammation, is extremely rare; it is scarcely seen, except in the scars by which the damages of disease are healed. And, besides, this degeneration is a step towards the absorption of the lymph; for commonly we may trace yet later stages of degeneration in these granule-cells. They lose their cell-walls, and become mere masses of granules or fatty particles, held together for a time by some pellucid substance, but at last breaking up, and scattering their components in little clusters, or in separate granules.

Thus, if at no earlier period of their existence, or after no fewer changes, the lymph-corpuscles may pass into a condition as favorable for absorption as is that of the fibrin when similarly degenerate and broken up: and such as this, we may believe, is a part of the process by which is accomplished that "clearing up" of the solidified lung, which is watched with so much interest in pneumonia.

c. I may speak very briefly of the calcareous and the pigmentary degenerations of the lymph-cells. The former appear in cases such as Henle* refers to, in which granule-cells are composed not wholly of fatty-matter, but in part also of granules of earthy matter. In this combination they correspond with the common rule; for the fatty and earthy degenerations are usually coincident: they are combined in the advanced stages of the degenerations of arteries, and may be said to have their normal coincidence in ossification. Of the pigmentary degeneration of lymph-cells there are, I suppose, examples in the black matter effused in peritonitis: but the best examples are in the cells of bronchial mucus, to which I have already referred.

But I pass quickly by these, that I may speak of the degenerations of lymph-cells into pus-cells, or, more generally, of the process of suppuration that is connected with inflammation, The purulent is the most frequent degeneration of lymph, ensuing in nearly all cases in which it is placed in conditions unfavorable to its development—as, in the persistence of inflammation, or in exposure to air, or in general defects of vital force.

Of the conversion of lymph into pus we have numerous evidences; but a few may suffice for the proof.

1. The fluid of such vesicles as those of herpes is, in the first instance, a pure lymph, containing corpuscles which might be taken as types of the lymph- or exudation-corpuscles. If we watch these vesicles, we see their contents not increased,—rather, by evaporation, they are diminished; but the lymph is converted into pus, and pus-cells are now where lymph-cells were. And the changes may ensue very quickly: I think I have known it accomplished in twelve hours at the most.

* In his Zeitschrift, B. ii.

2. In like manner, when we watch the progress of an abscess, we may find one day a circumscribed, hard, and quite solid mass, and in a few days later the solid mass is fluid, and this with little or no increase of bulk. Now the incipient solidity and hardness are due to lymph; the later fluid is pus, and the change is the conversion of lymph into pus.

3. The relation of lymph- and pus-cells is also shown in this, that they often cannot be distinguished from one another. Even in common suppuration of a granulating wound, the granulation-cells (which cannot be distinguished from lymph-cells) appear to be convertible into pus-cells; superficial cells being detached in pus, while deeper ones are being developed into filaments. But in worse-formed granulations, as in those lining a sinus or fistula, the cells are often by no characters, except by their forming a solid tissue, distinguishable from pus-cells. One may see the same conversion of lymph into pus thus illustrated: an amputation through the thigh was performed when all the parts divided were infiltrated with lymph, effused in connection with acute traumatic inflammation of the knee-joint. Next day pus flowed freely from the wound. Now, in an amputation through healthy tissues, free suppuration does not appear till after three or four days: the pus here seen must have been formed by the conversion of the lymph previously infiltrated in the divided tissues.

These facts, while they may prove that the pus-cells are commonly the result of degeneration of lymph-cells, may also serve to show that the question whether pus-cells are ever formed in another way, or are even an original or primary product of inflammation, cannot be positively settled. We cannot always discern a preliminary lymph-stage; but neither can we always distinguish lymph-cells from pus-cells, nor can we see in how very brief a time the transformation may be accomplished.

Assuming, however, that, when it appears as an inflammatory product, the pus-cell is always either an ill-formed or a degenerate lymph-cell, we may believe that, of the various forms which it presents, some depend on the peculiar defectiveness of the lymph; some on the state which the lymph-cell, previously well-formed, had attained before its degeneration began; and others on the further degenerations which may have taken place after the characters of the pus-cell have been acquired.*

I would especially observe, that in specimens of what might be called "good" pus, we may find three principal forms. There are—1st, some corpuscles presenting the peculiar and well-known granulated or wrinkled appearance of pus-cells, but from which water will raise up no cell-wall; 2d, from others, like these at first sight, water will raise a cell-wall, and will show that the former kind consist of only such a substance as forms the contents of these: 3d, in others, even when no water is added, a cell-wall is visible, and within this are granulated contents, with a more or less distinct nucleus imbedded in them. In all these forms, moreover, the addition of acetic acid usually displays a single or a bipartite or tripartite nucleus. Now, it may be that these represent three different stages of the pus-cell, either developing, or, more probably, degenerating; but I think it is much more likely that these forms are the results of the purulent degeneration beginning in lymph-cells at different stages of their development. There is so remarkable a correspondence between these three varieties of pus-corpuscles, and the three chief forms which I described as observable in the development of the primordial cell of

* It may be added that other rudimental cells, besides those of lymph, may be so altered as to resemble exactly the ordinary pus-cells. In many of the supposed cases of pus in the blood, the bodies taken for pus-cells were certainly only altered white blood-corpuscles.

lymph, that one cannot but suspect that the three forms in the pus represent corresponding and similar degenerations from the three forms in the lymph.

When once formed, the pus-cells, if they are retained within the body, have no course but to degenerate further; it is characteristic of their being already degenerate, that they can neither increase nor develop themselves. The various corpuscles found in pus, besides those I have already mentioned, must find their interpretation in these degenerations; for the pus-cells are prone to all the degenerations that I described as occurring in the lymph-cells.

a. They may wither, as in the scabbing of pustular eruptions, or in long-retained and half-dried strumous abscesses.

b. Or, they may be broken up, whether before or after passing into the fatty degeneration, which is one of their most common changes, and in which they are transformed into granule-cells. It is this breaking-up into minute particles which, probably, precedes the final absorption of pus.

c. Or, lastly, both the cells and the fluid part of the pus may alike yield fatty and calcareous matter, and this may either remain diffused in fluid, or may dry into a firm mortar-like substance.

It is to such degenerations as these, in various degrees and combinations, and variously modified by circumstances, that we must ascribe the diverse appearances of the contents of chronic abscesses and of the substances left after their healing. In such abscesses we may find mixtures of pus-cells, granule-cells, and molecular matter, diffused in more or less liquid; or all cells may be broken up, and their debris may be found mingled with minute oily particles, which appear in all such cases to be always increasing; or, with these may be abundant crystals of cholesterine, or such crystals may predominate over all other solid contents. In yet other chronic abscesses (though, still, without our being able to tell why the pus should degenerate in these rather than in the forgoing methods), we find molecules of carbonate and phosphate of lime, mixed with fat-molecules and crystals, which are diffused in an opaque white fluid, and look like the deposit of lime-water, or like white paint; and as these contents dry, in the healing of the abscess, so are formed the mortar-like deposits and the hard concretions, such as are found in the substance of lymphatic glands, or other organs that have been the seats of chronic abscesses.

Time and patience would fail in an attempt to describe all the varieties of material that may thus issue from the transformations of pus. What I have enumerated are the principal or typical forms with which I believe nearly all others may be classed.

In conclusion of this part of the subject, a few words must be added respecting the degenerations which may occur after the lymph-products of inflammation are completely organised. All these degenerations, to which I have now so often referred, may be observed in fully-formed adhesions, or in the corresponding organised tissues in the substance of organs.

Of the wasting of adhesions we often see instances in the pericardium, where films of false membrane are attached to one layer of the membrane, while the opposed portion of the other layer is only thickened and opaque. A more remarkable instance, also, is presented in a case by Bichat, in which a man made twelve or fifteen attempts at suicide, at distant periods, by stabbing his abdomen. In the situations of the more recent wounds the intestines adhered to the walls of the abdomen; in those of the older wounds, the older adhesions were reduced to narrow bands, or were divided and hung in shreds.

Of fatty degeneration I have seen no good examples in adhesions or similar

inflammatory products, but of calcareous degenerations, or of such as present a combination of fatty and earthy matter, museums present abundant specimens. Among these are most of the plates of bone-like substances imbeded in adhesions of the pleura, in thickened and opaque portions of the cardiac pericardium, in the tunica vaginalis, in old hydroceles, in the thickened and undulated capsule of the spleen, in the similarly altered mitral and aortic valves. So, too, many of the so-called ossifications of muscles and ligaments are examples of calcareous degeneration of fibrous tissue formed in consequence of inflammation of these parts, and imbedded in masses of fibrous-looking bands within their substance. In some of these cases, indeed, there may be an approximation to the characters of true bone; but in nearly all, the earthy matter is deposited in an amorphous form, and seems to take the place of the former substance, as if, according to Rokitansky, it was a residue of the transformation of the more organised tissue, whose soluble parts have been, after decomposition, absorbed.*

Pigmental degeneration of adhesions may be seen, sometimes, in those of the pleura, in which black spots appear like the pigment-marks of the lungs and bronchial glands.† Adhesions of the iris, also, may become quite black; I suppose by the formation of pigment like the uvea.

Such appear to be the chief instances of degeneration ensuing in the more or less developed products of inflammation. Doubtless, the account which I have given of them is very incomplete, and in its details sometimes erroneous; yet I venture to think it may be useful to my fellow-workers in pathology, by helping them to keep the right direction in our labours.

Among the signs of the attainment of complete membership in the economy we may enumerate this,—that the organised product of inflammation is liable to the same diseases as the parts among which it is placed; that it reacts like them under irritation; is like them affected by morbid materials conveyed to it in the blood; and like them may be the seat of the growth of new and morbid organisms. No more complete proof of correspondence with the rest of the body could be afforded than this fact presents; for it shows that a morbid material in the blood, minute as is the test which it applies, finds in the product of inflammation the same qualities as in the older tissue to which it has peculiar affinity.

The subject, however, of the particular diseases to which these substances, themselves the products of disease, are liable, has been little studied. As I have already said, lymph, while it is being highly organised, is often the seat of hæmorrhage; its delicate new-formed vessels bursting under some external violence, or some increased pressure, and shedding blood. Such are most of the instances of hæmorrhagic pericarditis, and other hæmorrhages into inflamed serous sacs.

Even more frequently, the lymph, when organised, becomes itself the seat of fresh inflammation. Thus, in the serous membranes, we may find adhesions in the substance or interstices of which recent lymph or pus is deposited; or, in other cases, adhesions, or the thickenings and opacities of parts, become highly vascular and swollen. It is, indeed, very probable that, in many of the instances of the recurring inflammations that we watch in joints, or bones, or other parts, the seat of the disease is, after the first attack, as much in the organised product of the former disease as in the original tissue.

* Numerous specimens of the calcareous degeneration of adhesions were shown from College Museum, including Nos. 103, 1493, 1494, 1516, 1548, 3367, 3456, &c.

* As in No. 96 in the College Museum.

As an example of the inflammation of organised inflammatory products, I may present a specimen which has some historic interest.* It is one of those by which attention was first drawn to the connection between acute rheumatism and disease of the heart. It was presented to the College by Sir David Dundas, in 1808, and he sent with it a letter,† in which he says that it exemplifies a disease of the organ "which is not described by any author that I am acquainted with, but which, from the number of cases which have fallen under my observation, is, I apprehend, very frequent in this country. The most remarkable circumstance of this disease is its being always connected with, or subsequent to, an attack of acute rheumatism." In relation to the subject of which I was speaking, the specimen has this point of further interest, that it shows such a deposit of recent lymph among the old adhesions as, we may be sure, was derived from their vessels.

I suppose, also, that to such inflammations of organised inflammatory products we may ascribe many of the occasional aggravations of chronic inflammations in organs—the renewed pains and swellings of anchylosed joints, of syphilitic nodes, and the like,—which are so apt to occur on exposure to cold, or in any other otherwise trivial disturbance of the economy. In such cases we may believe that the former seat of disease is again inflamed, and that with it are involved the organised products of its former inflammations. And in such cases there are, perhaps, none of the effects of inflammation which may not ensue in the newly organised parts: evidently, they may be softened, or thickened and indurated, and made more firmly adherent; or they may be involved in ulceration, or may slough with the older tissues among which they are placed.

Lastly, the products of inflammation may be the seats of the morbid deposits of specific diseases. In their rudimental state they may incorporate the specific virus of inoculable diseases, such as primary syphilis, variola, and the rest: and when fully organised they may be the seat of cancer and tubercle. But on these subjects I have not time to dwell, although their pathology, especially as illustrated by the tuberculous diseases of serous membranes, is full of interest.

LECTURE V.

Effects of inflammation on the part in which it is seated; their generally destructive character—Softening of inflamed parts, as of brain, bones, ligaments, &c.—Fatty degeneration of inflamed parts, as in the liver and heart—Interstitial absorption of inflamed parts, as seen in bones, cartilages, glands, &c., and in the spontaneous opening of abscesses—Ulceration; ejection of tissues disintegrated after degeneration; supposed effects of corrosion and solution of tissues by ichorous discharges—Gangrene.

The account of the results of inflammation in the part in which it has its seat will include the chief among its second class of effects—the destructive effects; for I believe that nearly all the effects of inflammation are injurious, if not destructive, to the proper tissues of the part in which it is seated. All

* Museum of the College, No. 1512.

† Inserted in the Pathological Catalogue, vol. iii, p. 183: to it are added an account of the previous notices of the facts referred to by Dr. Jenner, Dr. Baillie, and M. Odier.

the changes I shall have to describe are characteristic of defective or suspended nutrition in the parts; they present varieties of degeneration, modified by the circumstances in which they have occurred, and especially by this,—that while the changes of the proper tissues of an inflamed part are making progress with all the characters of degeneration, the lymph-products of the inflammation may be in process of either development or degeneration in their interstices, or on their free surfaces.

One of the most common effects of inflammation in an organ is a more or less speedy *softening* of its substance; and this is due not only to infiltration of it with fluid, but to a proper loss of consistency, a change approaching to disintegration, of which, indeed, it is often the first stage. Of such mere softening, some of the best examples are in the true inflammatory softening of the brain and spinal cord, in which the softened part is usually found to consist of spoiled nervous substance, together with more or less abundant granular products of inflammation. Such softening also may be found in the lungs; the peculiar brittleness and rottenness of texture, which exists with the other characters of hepatization, are evidently due to changes in the proper tissue, more than to incorporation of the products of inflammation. In staphyloma of the cornea, similar softening ensues in connection with the opacity and other changes of appearance. But, perhaps, the most striking instance of softening in inflammation (and it is the more so because the softening probably precedes the other evident signs of inflammation*) is to be found in bones. One may generally notice that an acutely-inflamed bone is soft, so that a knife will easily penetrate it. Thus it may be found in the phalanges of the fingers when they partake in deep-seated inflammation, and thus, sometimes, in the neighbourhood of diseased joints. The change depends partly on an absorption of the earthy matter of the bone, this constituent being removed more quickly, and in greater proportion, than the animal matter; but the entire material of the bone is softened.

The softening of bones may permit of peculiar subsequent changes, especially of their swelling and expansion. Thus, in a remarkable case communicated by Mr. Arnott to Mr. Stanley, after excision of the corresponding ends of the radius and ulna, inflammation ensued in the shaft of the humerus, and after four months the patient died. The end of the inflamed humerus was full-red and swollen, with an expansion or separation of the layers of its walls. And the case showed well the coincidence of absorption and of enlargement by expansion; for though the diseased humerus was thus enlarged, and contained more blood than the healthy one, yet it "was found not to weigh so much by half."†

Similar expansions of bone, with all the characters of inflammation, and such as could not have happened without previous softening of the tissues, form part of the many swollen and enlarged bones which are common in all our museums.‡ Doubtless, in many of these cases, the disease has been of very slow progress, and the separation of the several layers of the compact bone, which the specimens display, must be ascribed to their gradually altered form, as they have grown about the enlarging blood-vessels and interstitial inflammatory deposits. But in other cases the expansion has, in all probability, been more rapid, the softened bone yielding and extending, as the naturally softer tissues do, in an inflammatory swelling.

* See Kuss, as quoted by Virchow, in his Archiv.

† Mr. Stanley's Illustrations, pl. i, figs. 4, 5, 6.

‡ In the College Museum, No. 593 to 600, and 3062 to 3094; and in the Museum of St. Bartholomew's, Series i, Nos. 56, 94, 113, 114, 115, 196, 197, 198, &c.

The characters of a bone thus expanded are easily discerned. Its substance may be irregularly cancellous or porous; but the most striking change is a more or less extensive and wide separation of the concentric laminæ of the walls of the bone, so that the longitudinal section of the enlarged wall appears composed of two or more layers of compact tissue, with a widely cancellous tissue between them: and these layers may sometimes be traced into continuity with those forming the healthy portion of the wall. Usually, the separated layers are carried outwards, and the bone appears outwardly enlarged; but sometimes the inner layers of the wall are pressed inwards, and encroach upon the medullary tissue. In the first periods of the disease, the cancellous tissue between the separated layers of the wall has wide spaces, which are usually filled with a bloody-coloured medulla: but this tissue, like the often coincident external formations of new bone, appears to have a tendency to become solid and hard; and its fibrils and laminæ may thicken, till they coalesce into a compact, ivory-like substance, harder than the healthy bone. *

Again, for examples of softening in inflammation, I may adduce the softening of ligaments, such as permits that great yielding of them which we see almost always in cases of severely inflamed joints. This is not from mere defective nutrition; for it does not happen in the same form, or time, or measure, in cases of paralysis or paraplegia, engendering extreme emaciation. Neither is it from the soaking of the ligaments with the fluid products of the inflammation; for it does not happen in the abundant effusions of the slighter inflammations of the joints; and when ligaments are long macerated in water they yet retain nearly all their inextensibility. It appears to be a peculiar softening, or diminished cohesion, of the proper tissue of the ligaments, the result of a defective nutrition, combined with infiltration of inflammatory products.

We may see such changes in the ligaments of all joints; in the hip, in the cases of spontaneous dislocation occasionally seen, independent of suppuration or ulceration of the parts belonging to the joint; in the wrist, when the ulna, after disease, becomes so prominent; in the vertebræ, especially in the ligaments of the atlas and axis. But we see the effects of this softening best in diseased knee-joints and elbow-joints; and in all these cases we may often observe an interesting later change, when the inflammation passes by. The ligaments softened during the inflammation yield to the weight of the limb, or perhaps to some muscular force, and the joint is distorted. Then the inflammation subsides, the normal method of nutrition in the joints is restored, the elongated ligaments recover their toughness, or are even indurated by the organisation and contraction of the inflammatory products deposited in them; but they do not recover their due position; and thus the joint is stiffened in the distortion to which its ligaments had yielded in the former period of inflammation. In the crowds of stiff, distorted, and yet not immovably fixed joints that one sees as the consequences of inflammation, these changes must generally have happened to the ligaments:—first softening and yielding—then recovering, with induration, and perhaps some contraction, due to their atrophy and the organisation of the inflammatory deposit. The cases are aggravated by similar changes in the adjacent parts; for the stiffness of such joints is not due to the ligaments alone; all the subcutaneous tissues are apt to be adherent and indurated.

The softening of the tissues of an inflamed part may be regarded as one of the instances of degeneration in the inflammatory process; and its diversity

* Abridged from the Pathological Catalogue of the College, vol. ii, p. 97.

from ordinary degenerations may be ascribed to the simultaneous infiltration of the inflammatory product, and perhaps to some other circumstance we cannot at present trace or guess. But a more general and unmixed form of degeneration may, I think, be occasionally observed in the tissues of inflamed parts—namely, fatty degeneration; and this in such a manner as to make it probable that the degeneration takes place even during the inflammation. Thus, fatty degeneration of the hepatic cells appears a usual coincident of the form of inflammation which produces the so-called "brawny" liver. I think, too, that I have seen fatty degeneration of the muscular fibres, in inflammation of the heart; especially in a recent case, in which the heart was punctured with a needle, and the patient died four days afterwards. The portion of the heart near the needle was more degenerate than the rest of its substance. So, also, in some instances of acute ulceration of cartilage, I have found that a fatty degeneration of the contents of the cells, together with similar degeneration or disappearance of the nuclei, constantly precedes the removal of the whole substance of the cartilage.* I am inclined, therefore, to believe that this method of degeneration may occur not unfrequently in inflammation of certain parts, and may be, like the softening last described, a principal constituent of the changes preceding their complete absorption.

Both the foregoing degenerative changes in inflamed parts are favorable to complete removal by *absorption*, in which we find another example of the destructive effects of inflammation. And this absorption, which in many inflammatory conditions is a peculiarly rapid event, may effect at once the proper elements of a part, its blood-vessels and the inflammatory products that may have been previously deposited among them.

I shall refer here only to that which has been called *interstitial absorption;* to the removal of parts from within the very substance of the tissues, as distinguished from the removal by the ejection of particles from the surface, of which I shall next speak as occurring in *ulceration.*

We may believe that such degenerations as I have just described usually precede this interstitial absorption of parts; but we cannot be quite sure of it, because we cannot see the parts immediately before absorption; or, rather, because we cannot be sure that what we see was to have been very soon absorbed. But, as I stated in the last lecture, we are justified in holding that no absorption of the living tissues can take place without previous change or degeneration of that which is to be absorbed. And we may the more certainly believe that in the interstitial absorption which takes place in an inflamed part, degeneration and disintegration of its tissues always ensue before they are, as the expression is, "taken up," from the observation that the degenerative changes, which I have just described, are sometimes evidently the precedents of absorption. Of such interstitial absorption of inflamed parts, we find well-marked instances in that form of ulceration of articular cartilages in which the deeper portion of the cartilage is removed, together with the adjacent osseous layer covering the head of the bone; for here we can hardly suppose that the disintegrated particles are cast out, whatever they may be in the superficial ulceration of the same tissue. Such interstitial absorption is seen, too, very well in inflamed bones. The head of a bone may be scarcely

* Similar observations are made by Dr. Redfern, especially in the third case of his excellent essay on 'Abnormal Nutrition in Articular Cartilages.' Perhaps also we ought to classify with the degenerations that may ensue in the proper tissue of an inflamed part, the ossification of the laryngeal cartilages when involved in inflammation, and the fibrous structure acquired in slightly and long inflamed muscles.

enlarged, while its interior is hollowed out by an abscess; what remains of th bone may be indurated, as by slight and tardy inflammation, but so much of the bone as was where now the abscess is, must have been inflamed and absorbed. Here, too, the evidence of absorption is completed by the similar excavations formed in bones within which cysts and tumours grow; for in these cases no other removal than by absorption seems possible.

To similar absorption of inflamed tissue we may refer the wasting and deformity that we notice in the heads of bones that have been the seat of chronic rheumatism. The best examples of this are in the head and neck of the femur; and the retention of the compact layer of bone, covering in the wasted cancellous tissue of the shortened neck and flattened head, is characteristic of interstitial absorption, as distinguished from ulceration, by which the cancellous tissue is commonly exposed. In these cases of chronic inflammation of the bones, we may notice, also, an appearance of degeneration that precedes a peculiar mode of absorption. While the articular cartilages are passing through the stages of "fibrous degeneration," and are being gradually removed, the subjacent bone is assuming the peculiar hardness which has been termed "eburnation," or "porcellaneous" change. Now this change is effected by the formation of very imperfect bone,—of bone that has no well-formed corpuscles; and resembles the result of mere calcareous degeneration rather than of a genuine ossifying induration. And its character as a degeneration is further declared in this; that it is prone to the destructive perforating ulceration, which often gives a peculiar worm-eaten appearance to the bones thus diseased.*

With these changes in rheumatic bones we may also cite, as instances of absorption during inflammation, the changes which Mr. Gulliver† first described as apt to ensue after injuries about the trochanter of the femur. In such cases, without any appearance of ulcerative destruction, the head and neck of the femur may waste by absorption, the neck becoming shortened, and the head assuming a peculiar conical form. We might regard these effects as a simple atrophy, if it were not that they are like the effects of the more manifest inflammation in the rheumatic cases, and that the existence of inflammation during life is often declared by the symptoms following the injury.

Again, other examples of the absorption of inflamed parts, or of parts that have been inflamed, are presented in the wasting of glands after inflammation; as in cirrhosis of the liver, in some forms of granular degenerations of the kidney, in the indurated and contracted lung after pneumonia.

No doubt, in these cases, the reduction of the organ depends, in a measure, on the contraction of the diffused inflammatory product, as it organises; but in many cases the quantity of new tissue is extremely small (it is so in the shrivelled granular kidney); and, in all the cases, we may well doubt whether the contraction of organising lymph would produce such extensive and uniform absorption of the proper substance of an organ, if there were not a previous condition favouring the absorption. The most probable explanation of these cases seems to be, that as in the early periods of the inflammation, the soften-

* A change, which appears to correspond with the eburnation of bone, is described by Mr. Tomes as occurring in the part of a tooth which lies just beneath a carious cavity. In both cases the induration might suggest that it is calculated to retard the progress of the disease, but we have no evidence that it does this in an effective manner; and in the case of the bones there is every appearance that the destruction is most rapid where there is most induration.

† Edinburgh Med. and Surg. Journal, vol. lxvi. The change is illustrated in No. 3312 in the College Museum.

ing and the degeneration of the inflamed tissues coincide with the production of the lymph; so, as the inflammation subsides, and subsequently the absorption of the degenerated tissues may often coincide with the full organisation and contraction of the lymph. And it is altogether most probable that these events are independent though concurrent; that each occurs as of itself, not as the cause or consequence of the others.

To all these cases must be added the fact of the absorption of the blood-vessels, and other accessory apparatus, of the inflamed tissues. The absorption of the absorbents themselves must coincide with that of the tissues. What a problem is here! These, that had once been the apparatus maintaining life, that had been adjusted to its energy and fashion, now, as it fails, remove themselves in adaptation to its failure. How can this be? We can only guess that its method is just the reverse of the method of formation; that, as in growth the blood-vessels and lymphatics follow in the course of evolution of the growing parts, opening and extending into each new part as it forms, so in decrease, they follow, and closing in harmoniously with the general involution, mingle their degenerate materials with those of the tissue, and are absorbed by the nearest remaining streams of blood.

Once more: not only the original elements of the tissues may be absorbed, but even more rapidly, the new-formed products of inflammation. We have the best example of this, as well as indeed of many of the facts which I have been mentioning, in the spontaneous opening of a common abscess; which, though it be so common a thing, I will venture to describe here.

Let us suppose the case of an abscess formed in the subcutaneous tissue; of such an one as may have had its origin in lymph infiltrated through a certain area of the tissues, and forming therein a hard circumscribed inflamed mass. Of this lymph we may suppose the greater part degenerating into pus. It may begin to do so at a central point,—the point at which the conditions of nutrition are the most impaired: or the suppuration may begin at many points at once, and thence extending, the several collections of matter may be fused together. Sometimes masses of the infiltrated and softened tissue are thus detached and cast loose in the cavity of the abscess (as in these specimens.)* But at length we may suppose all the central portion suppurated, while the peripheral part, as happens usually in chronic abscesses, may be more organised, may acquire blood-vessels, and may thus assume the character of a granulation-layer, and form the proper wall of the abscess.

The pus of such an abscess as this will contain, probably, besides its proper constituents, some of the disintegrated tissue of the part in which it has its seat. We cannot, indeed, be quite sure of this; for it may be, that while the lymph is being formed, or being converted into pus, the proper tissue of the part may be undergoing absorption; and although, in the puss of abscesses thus formed we often find abundant molecular and granular matter, yet this may be the débris, not of the tissue, but of the lymph-cells or pus-cells, or of the fibrin which may have coagulated with the lymph-cells. We cannot, I think, be sure on this matter; but we may be sure that the circumscribed portion of tissue, in which such an abscess as I am describing has its seat, degenerates, and is either absorbed, or else disintegrated so as to mingle more or less of its substance with the pus.

In such an abscess, moreover, we often find a layer of cells, spread out like a thin yellowish-white membrane, on the interior of the wall. They are only like lymph-cells or pus-cells, not yet mingled with the rest of the contents of the abscess; but they have been made to seem more important by being

* College Museum, 113, 114.

called a "pyogenic membrane," and by its being sometimes implied that it is their work to secrete the pus. But the existence of such cells is far from constant in abscesses, and we cannot suppose a special membrane necessary for the formation of pus, while we see the best examples of it formed on granulating wounds, and on mucous surfaces, which have no such "pyogenic" membrane.

The abscess thus formed has a natural tendency to open, unless all the inflammation in which it had its origin subsides. Inflammation appears to be essential to the spontaneous opening of abscesses; for, where it is absent, the matter of chronic abscesses will remain, like the contents of any cyst, quiet for weeks, or months, or years; and when in chronic abscesses, or in cysts, inflammation ensues through the whole thickness of their coverings, it is usually certain that their opening is near at hand. This difference between acute and chronic abscesses makes it very doubtful whether the inflammation of the coverings of an abscess can be ascribed to any local influence of the pus. But, to whatever it may be ascribed, we may refer to this inflammation the comparatively quick absorption of the integuments over the collection of matter: and thus the fact, however we may account for it, that the integuments are more prone to inflammation, and more actively engaged in it, than the other tissues about an abscess are, may be used to explain the progress of matter towards the surface. Possibly—though this I think is much less probable—the tissues between an abscess and the surface may, after the degeneration which accompanies their degeneration, be disintegrated, and may mingle their molecules with the purulent contents of the abscess. But in favour of the belief that they are absorbed we have the evidence of analogy; for just the same thinning and removal of integuments takes place when they inflame over a chronic abscess, with a thick impenetrable cyst, or over an encysted or even a solid tumour.* Here absorption alone is possible; and the cases are so similar to the ordinary progress of abscesses, that I think we may assign all the changes of the integuments over these to the same interstitial absorption.

As the absorption proceeds, the integuments grow not only thinner, but softer, and more yielding. And this softening is worth notice, because one might suppose that as pus accumulates, so the integuments over it would become tenser and more resisting. It is, probably, in great measure, such a softening as I have already spoken of in degenerating inflamed parts; but it may be also due, in some degree, to such a change as that to which Mr. Hunter refers as "the relaxing or elongating process." He used to show this specimen,† and say of it in his lectures, "This preparation represents the front of a chest which contained an aneurism of the aorta; and here on the right side, you see an instance of the elongating process, the cartilages being bent outwards, or elongated, to adapt themselves to its figure." Of the same process he says elsewhere,‡ "Besides these two modes of removing whole parts, singly or together [that is, besides the interstitial and the progressive absorption], there is an operation totally distinct from either; and this is a relaxing and elongating process carried on between the abscess and the skin, and at those parts only where the matter begins to point. It is possible that this relaxing, elongating and weakening process, may arise in some degree from the absorption of the interior parts; but there is certainly something more, for the skin that covers an abscess is always looser than a part that

* As in No. 121, College Museum.

† College Museum, No. 122; and Catalogue, vol. i, p. 53.

‡ On the Blood, &c., Works, vol. iii, p. 477.

gives way from mere mechanical distension, excepting the increase of the abscess is very rapid.

"That parts relax or elongate without mechanical force, but from particular stimuli, is evident in the female parts of generation, before the birth of the fœtus; they become relaxed prior to any pressure. The old women in the country can tell when a hen is going to lay from the parts becoming loose about the anus."

I have quoted the whole passage, because I believe that more recent researches have done nothing towards either improving the description or explaining the fact, except in so far as they make it probable that the change is due in a measure to the inflammatory softening of the pointing skin.

While these changes of degeneration and removal, of softening and relaxing, are ensuing in the cutis over such an abscess as I have described, we commonly notice that the cuticle separates, leaving the very point, or most prominent part, of the abscess bare. The cuticle is not raised as in a blister, but peels off like dead cuticle; and we may believe that it is dead, partaking in the failure of nutrition in which all the parts over the abscess are involved, and being removed as a dead, not as a merely degenerated, part: for thus cuticle is always removed.

At length, after extreme thinning of the integuments, they perish in the centre of the most prominent part. Sometimes the perished part becomes dry and parchment-like, with a kind of dry gangrene; but much more commonly a very small ordinary slough is formed, and the detachment of this gives issue to the purulent matter. The discharge is usually followed by a more or less complete cessation of the inflammation in the integuments, and then the wall of the abscess, having the character of a cavity lined with healthy granulations, heals.

Such appears to be the ordinary course of an abscess; and I venture to hope that the numerous principles of inflammation that it illustrates will justify my having used so much time in describing it.

I proceed now to the consideration of *Ulceration*, as one of the effects produced by inflammation in the proper tissue of the inflamed part.

I need hardly say that, ever since Hunter's time, confusion has existed in the use of the terms employed for various kinds or methods of absorption and ulceration. Of all that Hunter wrote, nothing, I think, is so intricate, so difficult to understand, as his chapter on ulcerative inflammation; and much of the obscurity in which he left the subject remains. For a general consideration of the subject, it may suffice to speak (as I have done) of the removals of the particles of inflamed parts, which are not on an open or exposed surface, as the "interstitial absorptions" of inflamed parts. Then, the term "ulceration" may be employed to express the removals of the superficial or exposed particles of inflamed parts. If these superficial particles may be supposed to be absorbed, the process of removing them may be termed "ulcerative absorption;" but if it is more probable that their removal is effected entirely by ejecting them from the surface of the inflamed part, then the term "ulceration" may sufficiently express this ejection, and will stand in stronger contrast to the "interstitial absorption" of the particles that are not so ejected.

I have lately referred to the uncertainty whether, as the cavity of an abscess enlarges, the tissues that are removed from the inner surface of its boundary walls are absorbed, or are disintegrated and mingled with its fluid contents; in other words, whether they are absorbed or ejected. The same uncertainty exists in the case of ulceration. Is the enlargement of an ulcer

effected by absorption of its boundaries, or by the gradual detachment and casting-off of particles from their free surface? Both methods of enlargement may, perhaps, in some cases, ensue; but the probabilities are in favour of the enlargement being, as a rule, effected by the ejection of particles.

Thus:—1. Parts to be removed from a surface are generally cast-off rather than absorbed, as cuticles of all kinds are, and the materials of secretions; so that, by analogy, we might assume that the particles of the surface of a spreading ulcer would also be cast-off.

2. The materials of the ulcerating tissue may be sometimes found in the discharge from the ulcer. In most cases, indeed, this is impossible; but perhaps it is so only because, when the tissues are degenerate, and broken-up, or decomposed and dissolved, we have no tests by which to recognise them. In the case of bone, however, some of the constituents of which are not so easily disguised, the ejected materials may be found. In one of his lectures delivered in this theatre, Mr. Bransby Cooper mentioned that, while in pus from soft parts only traces of phosphate of lime were found, the pus from around diseased bone contained in solution nearly $2\frac{1}{2}$ per cent.* A similar, but less complete observation, had been made by Mr. Thomas Taylor,† and by Von Bibra;‡ and we may be nearly sure that the phosphate of lime was, in these cases, some of what had existed in the diseased bone.

3. It strengthens this belief to observe, that, in many cases, small fragments of bone and other tissues are detached and cast-out with the fluid secreted from the ulcerating part. These, indeed, when they are not fragments of tissue detached by ulceration extending around them, are good examples of the transition that may be traced from ulceration to sloughing or gangrene of parts, between which, if ulceration be always accomplished by ejection, the only essential difference will be one of degree: the ulceration being a death and casting-off of invisible particles of a tissue, while gangrene implies the death and casting-off of visible portions.

4. And it may be proved of many that we call ulcers that they begin as sloughs which are cast-off, and leave the ulcerated surface beneath. We may often see this, on a large scale, in the instances of what are called sloughing ulcers; but Dr. Baly has proved it for a much wider range of cases, in his observations on dysentery, in which he has traced how even the smallest and the most superficial ulcers of the intestine are preceded by the death and detachment of portions of the mucous membrane, with its covering of basement-membrane and epithelium.§

From these considerations, we may hold it as probable that ulceration is, usually, the result of the detachment of dead portions or molecules of a tissue, and that the substance removed in the process is not absorbed, but

* Medical Gazette, May, 1845.

† Stanley on Diseases of the Bones, p. 89.

‡ Chemische Untersuchungen verschiedener Eiterarten, p. 85. It may seem that, in these cases, a further proof is needed that the quantity of bone-earths discharged with the pus is proportionate or equal to the quantity lost by the ulcerating bone. But this proof may be neither possible nor necessary; for if what has been already said of the conformity of the properties of inflammatory and reparatory products with those of the tissues from which they are produced, be true, then will also pus from diseased bone possess more bone-earths than pus from any other tissue, even though the bone be not ulcerating. Granulations upon bone doubtless contain more bone-earths than those from soft parts, and they may ossify. Now the relation of pus to granulations is commonly that of degenerating cells to the like cells developing; therefore we might expect that pus from bone, like granulations from bone, will contain a large proportion of bone-earths, independent of what may be derived from the ulceration of the bone.

§ Gulstonian Lectures. Medical Gazette, 1847.

ejected. There are, indeed, some cases which may make us unwilling to admit, at present, that all ulceration is by ejection; such as those of bone ulcerating under cartilage, or in the rapid extension of inflammation within it, or such as the spreading ulceration of the vertebræ, or the heads of bones, that is not attended with external discharge of fluid. These may interfere with the universality of the rule, but not with its generality.

But, if we may believe that the removal of a tissue by ulceration is generally effected by ejection of its substance, the question may be asked, in what form is it ejected? Dr. Baly's observations enable us to say, that, in the first instance, a visible slough is detached, a portion of the tissue dying and being disconnected from the adjacent living tissue. But, after this is done, when an ulcer enlarges, or extends and spreads, is the material of the tissue still removed in visible sloughs or fragments? Certainly it is so sometimes; for we may find little fragments of bone in the discharge from ulcerating bone, especially in strumous ulceration. But in other cases we have no evidence of this kind; we cannot detect even microscopic fragments of tissues in the discharges, and we must suppose that they are removed, in a state of solution or of molecular subdivision, in the discharge from the diseased part.

To speak of the solution of tissues in the discharges of ulcers, may seem like the revival of an old error long since disproved. But though the expression may be revived, it is with a new meaning. The proof has, truly, been long completed, that healthy tissues, even though they be dead, cannot be dissolved in pus, or any such discharge; but the tissues that bound or form the walls of a spreading ulcer are not healthy; they are inflamed, or otherwise diseased and degenerate; and they may now be soluble in fluids that could not dissolve them while they were sound. Insolubility is as great an obstacle to absorption as to ejection in discharges; no tissue can be absorbed without being first so far changed as to be soluble in fluids with which it was before in contact and unharmed. Therefore, whether we hold the ordinary spreading of an ulcer to be by absorption of its boundaries, or ascribe it to their ejection, we must, in either case, admit that they are first made soluble. And if this be admitted, then it is most consistent with analogy, and most probable that the extension of an ulcer, independently of sloughing, is accomplished by the gradual degeneration of the tissues that form its walls, and by their being either disintegrated and cast off in minute molecular matter, or else dissolved and ejected in solution in the discharges from the ulcer.

The solution here spoken of is such as may be effected by the fluid discharged from any spreading ulcers; and we may doubt whether all discharges from ulcers possess a *corroding* property, such as Rokitansky seems to ascribe to them, and such as he considers to be the chief cause of the extension of all ulcers. We may doubt, I say, whether all ulceration can be described as a corrosion or erosion of the tissues by ichor; but, on the other side, we cannot well doubt that the properties of the discharge from an ulcer, or a sloughing sore, may have a great influence in accelerating the degeneration and decomposition, and thereby the solution, of the tissues that form its walls or boundaries. Many ichorous discharges from ulcers inflame and excoriate the parts over which they flow; and one constituent of inflammation is the defective nutrition of the proper elements of the affected tissue. Many such discharges, also, are in an active state of decomposition; and their contact with the tissues cannot but have some tendency to excite decomposition in them; a tendency which the tissues will be the less able to resist, in the same proportion as they are already feebly maintaining themselves, or as they have been moved by inflammation from their normal conditions, and their normal tenacity of composition.

On the whole, then, we may conclude, respecting the process of ulceration, that its beginning is usually the detachment of a slough, or portion of dead tissue, by the removal of the layer of living tissue that bounded it; that the spreading of an ulcer, independent of such visible sloughing, is effected by the tissues that bound it becoming degenerate, and being detached in minute particles, or molecular matter, or being decomposed and dissolved in the fluid discharge or ichor; and that this spreading may be accelerated by the influence of the discharge itself, which may inflame the healthy tissues that it rests on, and may exercise a decomposing "catalytic" action on those that are inflamed already.

I have already said that the products of inflammation are commonly removed, in ulceration, together with the elements of the tissues in which they are deposited. And all that has been said of the changes that the tissues undergo previous to ejection or solution, may be said, also, of the products of the inflammation which commonly precedes and accompanies the ulcerative process.

I need hardly say that we have no knowledge by which to explain the peculiar and characteristic forms of certain ulcers. We seem wholly without a guide to such knowledge; but the existence of such specific forms is conclusive against the supposition that the extension of an ulcer is entirely due to corrosion by an exuded fluid. Such a fluid would act uniformly, unless the various effects of disease on the tissues bounding the ulcer should make them variously amenable to its influence.

The last enumerated effect produced by inflammation in the tissues in which it is seated is gangrene, mortification, or sloughing.

In the usual enumeration of the effects of inflammation, it is commonly implied that the processes of effusion of lymph, suppuration, ulceration, and mortification, may be taken as the expressions of so many successive degrees of severity of the morbid process. But this is far from being unconditionally true. The exciting cause of the inflammation, the tissue affected, the condition of the blood, the general amount of vital force, and the degrees in which the blood-vessels can adapt themselves to the transit of various quantities of blood; all these, and, perhaps, several other things, have as marked an influence as the severity of the disease has in determining the result of an inflammation to be gangrene of the affected part. It may be nearer the general truth to say, that the probability of gangrene ensuing in inflammation is proportionate to the sum of the intensity of the disease *plus* the debility or defective vitality of the diseased part, whether that debility have a general or a local origin. But, indeed, in any case of gangrene that may be regarded as inflammatory, it is very hard to say what may be ascribed to the inflammatory process, and how that process affects the issue, so great are the number, and so diverse the natures, of the several morbid conditions that are from the first, or in succession, involved. Certainly it is not possible to speak clearly of inflammatory gangrene without constant reference to many other forms of local death which lie far beyond the range of these lectures. For this reason, and because a separate series of specimens in the Museum is devoted to the illustration of the death of parts, I shall here conclude the account of the phenomena and effects of inflammation.

LECTURE VI.

Nature and causes of inflammation—Limitation of the term "increased action" as applied to the process of inflammation—Indications of defective nutrition, and defective exercise of the vital forces; in the effects described in the preceding lecture, and in the low organic characters of the inflammatory products, and in the conditions preceding the process—Peculiarities by which the inflammatory mode of nutrition is generally distinguished from hypertrophy, atrophy, and the production of new growths, such as tumours.

Proximate causes of inflammation traced to qualitative changes of the necessary conditions of normal nutrition; as, 1. *Of the blood-vessels;* 2. *Of the blood, especially in innoculable diseases, and specific inflammations; explanation of the localization of a general disease of the blood;* 3. *Of the nervous force, as affecting the size of the blood-vessels, and as having a share in the plasturgic forces;* 4. *Of the proper tissues of the inflamed part.*

An examination of the nature of the process of inflammation may best be made in the form of a comparison of its effects with those of the normal process of nutrition. And this comparison may be drawn with two principal views, namely, to determine—1st, How the effects of inflammation differ, in respect of *quantity*, from those of the normal process; and 2d, How they differ from the same, in respect of *quality* or *method*.

The decision on the first of these points may seem to be given in the term "increased action," which is commonly used, as synonymous with inflammation. As used by Mr. Hunter, this term was meant to imply that the small vessels of an inflamed part are more than naturally active, in formation or absorption, or in both these processes. This is, probably, the meaning still generally attached to the term by some; while, as employed by those who believe the vessels are only accessories in the work of nutrition, the expression "increased action" may be used to imply merely increased formation, or increased absorption. In either, or in any, meaning, however, the term seems to involve the idea of an increased exercise of the vital forces, *i. e.* of those forces through the operation of which the various acts of organic formation are accomplished. But, if "increased action" is to imply this, the description of the process and effects of inflammation shows that the term cannot be properly used, without some limit or qualification.

If we consider the quantity of organic formation effected during the inflammatory process, in the proper substance of the inflamed part, it is evidently diminished. All the changes described in the last lecture are signs or results of diminished or suspended nutrition in the tissues of the inflamed part; they are all characteristic of atrophy, degeneration, or death. The tissues become soft or quite disorganised; they are relaxed and weakened; they degenerate, and remain lowered at once in structure, chemical composition, and functional power; or else, after degeneration, they are absorbed, or are disintegrated, or dissolved, and cast out; they die in particles or in the mass. During all the process of inflammation, there is no such thing as an increased formation of the natural structures of the inflamed part; they are not even maintained; their nutrition is always impaired, or quite suspended. It is only after the inflammation has ceased that there is an appearance of increased formation in some of the lowly-organised tissues, as the bones and cellular tissue.

So far, then, as the proper substance of the inflamed part is concerned,

there appears to be decreased action; that is, decreased formation. There may be, indeed, an increased absorption; but this is also, in one sense, characteristic of decreased exercise of vital force, since all absorption implies a previous degeneration of the part absorbed. Nor can we justly call this, in any sense, "increased action," till we can show how absorption is an act of vessels.

On the whole, then, we may conclude thus far, that one of the constituents of the inflammatory process—one of the characters in which it differs, in respect of quantity, from normal nutrition—is a defect in the nutrition of the proper substance of the inflamed part.*

But it is characteristic of inflammation, that, while the inflamed part itself suffers deterioration, there is a production of material which may be organised. Here, therefore, may be an evidence of increased formation, of increased action.

Doubtless, in relation to the productive part of the inflammatory process, the expression "increased action" may be in some sense justly used; for the weight of an inflamed part, or of the material separated from it, may be much increased by the formation of organised matter. But the quantity of organised matter formed in an inflammation must not be unconditionally taken as the measure of increase in the exercise of the vital forces; for it is to be observed, that the material formed presents only the lowest grades of organisation, and that it is not capable of development, but rather tends to degeneration, so long as the inflammation lasts.

It may be but a vague estimate that we can make of the amount of vital force exercised in any act of formation, yet we may be sure that a comparatively small amount is sufficient for the production of low organisms, such as are the fibrinous and corpuscular lymphs of inflammation. The abundant production of lowly organised structures is one of the features of the life of the lowest creatures, in both the vegetable and animal kingdoms; and, in our own cases, a corresponding abundant production is often noticed in the lowest states of vital force: witness the final inflammations, so frequent in the last stages of granular degeneration of the kidneys, of phthisis, of cancer, and other exhausting diseases. In all these, even large quantities of the lowly organised cells of inflammatory lymph may be formed, when life is at its last ebb. And with these cases correspond those that show the most rapid increase of tubercle and cancer, and other lowly organised tumours, when the health is most enfeebled, and when the blood and all the natural structures are wasting.

From these considerations we may conclude that the productive part of the inflammatory process is not declaratory of the exercise of a large amount of vital, or organising, force; and this conclusion is confirmed by observing that development, which always requires the highest and most favored exercise of the powers of organic life, does not occur while inflammation lasts. The general conclusions, therefore, may be, as well from the productive as from the destructive effects of the inflammatory process; that it is accomplished with small expenditure of vital force, and that even when large quantities of lymph are formed, such an expression as "increased action" cannot be safely used, unless we can be sure that the defect of the formative power exercised in the proper tissue of the inflamed part is more than counterbalanced by the excess of power manifested in the production and low organisation of lymph.

It may be said that the signs of inflammation are signs of increased action.

* This has been clearly maintained by Dr. Carpenter. See British and Foreign Medical Review, July, 1844.

But these are fallacious, if, again, by increased action be meant any increased exercise of vital force. The redness and the swelling of an inflamed part declare the presence of more blood; but this blood moves slowly; and it is a quick renewal of blood, rather than a large quantity at any time in a part, that is significant of active life. An abundance of blood, with slow movement of it, is in no case characteristic of activity in a part; it more often implies the contrary, as in the erectile tissues, and the cancellous tissue of bones.

The sign of heat in the inflamed part is equally fallacious. The source of the locally increased heat cannot, I believe, be satisfactorily explained. This phenomenon of inflammation is involved in the same difficulty as are all those that concern the local variations of temperature in the body—difficulties which the doctrines of Liebig, however good for the general production of heat, are quite unable to explain. But, from the fact that the general supply of heat in our bodies is derived from oxydation, or combustion of wasted tissues, or of surplus food, we may assume that, in local augmentation of heat, the source is rather from some similar destruction of organic substances, than from increased formation of them. This can, indeed, be only assumed; but, if there be little evidence for it, there is as little for any assumption that the increased heat of an inflamed part is an indication of an increased formative action. The full heat of an actively growing part may be compared with the high temperature of one which is the seat of "determination" of blood, or of "active congestion;" for, in both cases, the heat is high because the blood, brought quickly from the heart, is quickly removed: but, in an inflamed part, the blood is not so renewed; it moves more slowly.

In thus endeavouring to estimate the difference between the normal and the inflammatory modes of nutrition, in regard to the quantity of formative or other vital force exercised in them respectively, I have also stated the chief differences between them in relation to the quality or method of nutrition. The most general peculiarity of the inflammatory method, in its simplest form, is the concurrence of these two distinct and independent, though usually coincident, events, namely—1st, The impairment or suspension of the nutrition of the proper substance of the inflamed part; and 2d, The effusion, from the blood, of a material more than sufficient in quality for the nutrition of the part, but less than sufficient in its capacity of development.

The predominance of one or the other of these components is the ground of some of the chief varieties in the forms of inflammation; distinguishing, especially, the adhesive and suppurative inflammations, in which the formative part predominates, from the ulcerative and gangrenous, in which the destructive part prevails. But in all cases, the two components of the process are in certain measures combined, and their combination establishes the chief differences between the inflammatory and every other mode of nutrition in a part. Thus, from all the forms of mere atrophy or degeneration, the inflammatory process is distinguished by the production of the lymph, which may be organising, even while the proper tissue of the inflamed part is in process of atrophy, degeneration, or absorption. So far as the tissues inflamed are concerned, some inflammations might be classed with atrophies or degenerations; but the concurrent production of lymph is distinctive of them.

On the other side, the inflammatory mode of nutrition is distinguished from all the forms of hypertrophy by the failure of the nutrition of the inflamed part itself. So far as mere production and formation of organisms are concerned, some inflammations might be paralleled with hypertrophies; but the organisation of the lymph falls short of that proper to the part in which it is

exuded; and the substance of the part, instead of being augmented, is only replaced by one of lower organisation.

And, lastly, from the production of new growths, such as tumours, the inflammatory process is distinguished by this;—that its organised products, though like natural tissues of the body, are usually infiltrated, fused, and interwoven into the textures of the inflamed parts; and that, when once their development is achieved, they have no tendency to increase in a greater ratio than the rest of the body.

I am well aware that these can be accepted as only the generally distinguishing characters of the simplest inflammatory process. Cases might be easily adduced in which the border-lines are obscured; inflammations confounded on one side with atrophies, on another with hypertrophies, on a third with tumours. But the same difficulties are in every department of our science; yet we must acknowledge the value of general distinctions among diseases even more alike than these are.

The case that I have chosen for illustrating the general nature of the inflammatory process is one representing the disease in its simplest form and earliest stage, manifesting only the formation of lymph, and such a change as the softening or absorption of the inflamed part. This is but the beginning of the history: but, if the inflammation continues, or increases in severity, all that follows is consistent with this beginning; all displays the same double series of events, the same defective nutrition of the part, and the same production of low organism. But these additions are observed; the part is more and more deteriorated, and perishes in the mass, or in minute fragments; the newly organised products, not finding the necessary conditions of all nutrition, partake in the degenerative process, and, instead of being developed, are degenerated into pus, or some yet lower forms, or perish with the tissues in which they are imbedded.

Respecting, now, the causes of inflammation, I shall not say more of its exciting causes than that, from the external ones, which alone we can at all appreciate, we may derive a confirmation of the opinion I have expressed concerning the nature of the process. They are such as would be apt to produce depression of the vital forces in a part; all being, I think, such as, when applied with more severity, or for a longer time, will lead, not to inflammation, but to the death of the part. If a certain excess of heat will inflame, a certain yet greater heat will kill: if some violence will inflame, a greater violence will kill: if a diluted chemical agent will only irritate, the same concentrated will destroy the part. The same may be said, I think, of cold, mechanical injury, and all the other external exciting causes of inflammation. I am aware that other explanations of their action are given; but none seems to me so simple, or so consistent with the nature of the process that follows them, as this, which assumes that they all tend (as it may be said) to depress the vital forces exercised in the affected part: they may be stimulants or excitants of the sensitive nerves of the part, but they lead to the opposite of activity in its nutritive processes.

The proximate causes of inflammation appear to be various perversions of the necessary conditions of healthy nutrition in a part; that is, morbid changes in either the supply of blood, the composition of the blood, the influence of the nervous force, or the condition of the proper substance of the inflamed part. Any one or more of these four conditions of nutrition being changed in quality, the result appears to be an inflammation. A change in quantity more usually produces either an excess or deficiency of nutrition in the part, or some process different from inflammation. Thus, a diminution or

withdrawal of the blood, without alteration of its quality, is usually followed by atrophy, degeneration, or death : a mere increase of blood in a part may produce hypertrophy, or something more nearly resembling inflammation, yet falling short of it. Similar effects may ensue from a mere increase or decrease, or abstraction, of nervous force. Change in the quality, whether with or without one in the quantity, of the conditions of nutrition, appears essential to the production of the phenomena of inflammation.

I will endeavour now to show that inflammation may follow such perversion or qualitative change in each of the conditions of nutrition, even though all the rest of them remain in their normal state: selecting, for this purpose, such cases of inflammation as we may trace proceeding, in the first instance, from the uncomplicated error of a single condition of nutrition.

1st. Inflammation may perhaps be produced—it certainly may be in some measure imitated—by changes in the blood-vessels ; changes attended with alteration of their size, or their permeability, or the other qualities by which they affect the supply of blood to a part. This may be concluded from the similarity to some of the phenomena of inflammation which may be observed in certain cases of mechanical obstruction to the venous circulation. In a case of ascites from diseased heart or liver, the peritoneum often contains coagula of fibrin floating free in the serum, though no organ may present appearances of having been inflamed. In such a case, moreover, I have found the fibrin developing itself in the form of nucleated blastema, even while floating free. In another case of mechanical dropsy, I have found the fluid of anasarca in the scrotum containing abundant lymph-corpuscles, like those in the fluid of an inflammatory effusion. Such as these are the cases through which mechanical congestions of blood connect themselves with inflammation. And if to these we add the constancy of increased vascularity among the phenomena of inflammation, they may be sufficient to make us believe, that disturbances in the circulation of a part may produce some of the principal phenomena of inflammation, even though all the other conditions of nutrition are, in the first instance, unchanged. But I know no other good evidence for the belief; and I think we should not lay much stress on these cases, since they display an imitation of only one part of the process of inflammation, namely, the production of organisable matter. The nutrition of a part with obstructed circulation suffers but a trivial disturbance, in comparison with that which would accompany an inflammation with an equal amount of hinderance to the movement of the blood. I should therefore be cautious of regarding these effusions in mechanical obstructions of blood as more than partial imitations of the inflammatory process. So far as the infusion in an inflammation depends on the altered mechanical relations of the blood and vessels of a part, so far may similar alterations produce effects imitating those of inflammation; but I much doubt whether any change whatever in the circulation of a part, however produced, can alone produce, or alone maintain the phenomena or effects of inflammation. I believe that the disturbances of the circulation are no more adequate to the explanation of inflammation, than to the normal movements of the blood are adequate to the explanation of the ordinary process of nutrition.

2. We may speak much less equivocally of the influence of the state of the blood itself in determining inflammations; for there can be little doubt that a very great majority of the so-called spontaneous or constitutional, as distinguished from traumatic inflammations, have herein their origin. We might anticipate this from the consideration that, in normal nutrition, the principal factors are the tissues and the blood in their mutual relations: but we have

better evidence than this, in cases of local inflammations occurring in consequence of general diseases of the blood. Some instances of this are clearly proved, as, *e. g.*, in the cases of eruptive fevers, when the presence of morbid materials in the blood is proved by the effects of their transference in inoculation. Scarcely less thoroughly demonstrated are the cases of rheumatism and gout, of lepra, psoriasis, herpes, eczema, erysipelas, and other such affections, whose constitutional nature—in other words, whose primary seat in the blood—all readily acknowledge in practice, if not in theory. Now, in all these cases, local inflammations are the external signs of the general affection of the blood; and I apprehend that if any difficulty be felt in receiving these as evidences that the morbid condition of the blood is the cause of the local inflammation, it will be through doubt whether a general disease of the blood—a disease affecting the blood sent to every part—can produce peculiar phenomena of disease in only certain small parts or organs. But this local effect of a general disease of blood has its illustration in some of the sure principles of physiology; especially in this—that the presence of certain materials in the blood may determine the formation of appropriate organisms, in which they may be incorporated.* Thus, when one kidney is removed or destroyed, the other will acquire a greater size, sufficient for the discharge of the necessary quantity of urine. Now we know that the principal materials of urine exist ready-formed in the blood; that, being taken from the blood, they are incorporated in the secreting cells of the kidney, and are for a time enclosed in them, and enter into their composition; and that, finally, they are discharged into the excreting tubes from these cells, not by mere filtration. We may, therefore, safely hold that, when one kidney is lost or spoiled, more renal cells are formed in the other, *because* more of the constituents of urine are in the blood—in other words, that the presence of these constituents in the blood that is carried to every part determines the formation of appropriate organs in one part of the body; in which organs these constituents may be incorporated. Nor is this the only case. Certain medicines, especially diuretics, are separated from the blood by only certain organs; they must, for this separation—be embodied in those organs, and while embodied they may excite inflammation; as cantharides, turpentine, and the like, do. Abundant hydro-carbon principles in the blood will bring about the formation of abundant fat cells, in which they may be enclosed. The accumulation of sap in the branch of a tree that has been *ringed* will determine the organisation of abundant fruit; and many similar cases might be cited.

It is in exact parallel with these facts in physiology, that in certain general diseases of the blood, organs are formed, as the products of inflammation, within which the specific morbid material is incorporated. Thus, in small-pox, cow-pox, primary syphilis, and whatever other disease may be transferred by inoculation, the morbid material from the blood is incorporated in the fluid and corpuscular products of inflammation, which are enclosed within the characteristic vesicle or pustule; just as, in the cases already cited, the constituents of urine or of medicines are incorporated in the renal cells, which are formed within the substance of the kidney; or just as the constituents of sap are incorporated in fruit.

* This principle was fully discussed in the Lectures on Nutrition delivered in 1847, and published in the Medical Gazette of that year. And it appears to be capable of even much wider extension than was then assumed. For example, it supplies the best theoretic expression of the origin of cancerous and similar tumours. The cells or the tissues of these growths, we may believe, are formed so as to comprise or enclose specific morbid materials generated or inserted in the blood. That each such morbid material should have, for its appropriate habitation, cells and a mass of peculiar form and appearance, is only consistent with normal rules of formation.

In the cases of disease produced by a demonstrable virus, we have all the evidence that can be necessary to prove the principle I am contending for—namely, that a general disease of the blood may determine a local inflammation in one or more circumscribed portions of a tissue. And the analogy is so close that I think we need not hesitate to receive the same explanation of other inflammations, which I have cited as occurring during morbid conditions of the blood. For although we cannot, by inoculation, prove that a specific morbid material of such a disease as herpes, or rheumatism, has been incorporated in the inflammatory products, yet we find great probability hereof in the many analogies which these diseases present to the inoculable diseases, in their whole history, and especially in the decrease of general illness which ensues on the full manifestation of the local inflammation.

If it be asked why a morbid material is determined to one part or tissue rather than another, or why, for example, the skin is the normal seat of inflammation in smallpox, the joints in rheumatism, and so on. I believe we must say that we are, on this point, in the same ignorance as we are concerning the reason why the materials of sweat are discharged at the skin, those of urine at the kidneys, of bile at the liver, or why the greater part of the fibrin is incorporated in the muscles, and of gelatine in the bones. We cannot tell why these things are so; yet we believe them, and our belief has practical advantages. So may the belief that a great majority of the so-called spontaneous local inflammations are the consequences and manifestations of certain morbid conditions of the whole mass of blood; and that when such conditions depend on the presence of any specific material in the blood, a portion, or the whole, of that material is usually incorporated in the products of the inflammation, and in them is separated from the blood.

But, again it may be said, that if this be granted, still we need some explanation of the fact that the morbid condition of the blood does not influence the whole extent of any given tissue, but only portions of it. In the secretion of urine, it may be believed that the whole kidney is affected, and works alike; but in the assumed separation of the virus of smallpox, only patches of the skin are the seats of pustules; in vaccine and primary syphilis, only a single point; in secondary and tertiary syphilis, a certain, but often disorderly, succession of various parts, and so on.

It must be admitted that many of the facts here referred to cannot yet be explained; but such difficulty of explanation affords no warrant for a denial of the theory, especially since we are able, consistently with this theory, to point out some of the conditions that determine the locality in which a general disease of the blood will manifest itself by inflammation. In some instances, it is evident that the localization of a general disease of the blood is determined by a previous condition, such as we may call a weakened or depressed condition—a state of already impaired nutrition—in some one part. For instance, suppose a stream of cold air is impelled on some one part, say the shoulder, of a person disposed to rheumatism, it determines, as a more general exposure to cold might do, in the same person, the rheumatic state of the blood, with all its general symptoms; but it determines, besides, the part in which that rheumatic state shall manifest itself first or alone. The depressed nutrition of the chilled shoulder makes it more liable than any other part to be the seat of inflammation excited by the diseased blood.

Or, again, when a virus is inserted, as in all cases of poisoned wounds, the local inflammation produced by the disease with which the whole blood is infected, will commonly have its seat in the wounded part. The virus must have produced some change in the place in which it was inserted, as well as in the whole mass of the blood. These cases are, probably, only examples of

the general rule, that a part whose natural force of nutrition is in any way depressed, will, more than a healthy part, be liable to become the seat of chief manifestation of a general blood disease. Thus, a part that has been the seat of former disease or injury, and that has never recovered its vigour of nutrition, is always more liable than another to be the seat of local manifestation of blood-disease: it is, as they say, *a weak part*. Thus the old gouty or rheumatic joint is apt to receive the brunt of the new attack. And the same may happen in a more general way. A man was under my care with chronic inflammation of the synovial membrane of his knee, and general swelling about it: he was attacked with measles, and the eruption over the diseased knee was a diffused, bright scarlet rash. A patient under Dr. Budd's care had smallpox soon after a fall on the nates: she pustules were thinly scattered everywhere, except in the seat of former injury, and on this they were scattered as thickly as possible. Thus, too, when a part has been injured, and it may be, is healing, a disease having begun in the blood, will manifest itself in this part. Impetigo appears about blows and scratches, in unhealthy children: erysipelas about the same in men with unhealthy blood. Such facts as these appear to be sufficient evidences that morbid conditions of the blood are most probably the causes of the great majority of so-called spontaneous local inflammations; of such as cannot be traced to the direct influence of any external force, but appear rather as having an internal origin.

It may be added, that the state of the blood may determine not only the locality, but also the degree, and the form and probable termination of the inflammation. But on this I need not dwell, having devoted a large portion of a former lecture to demonstrate that the products of even the same form of inflammation excited in the same tissue, may be different in different persons, according to the several peculiarities of their blood.

3. Respecting the disturbance of the third condition of healthy nutrition, namely, the due influence of the nervous force, as a constituent of the phenomena of inflammation, I have already spoken in a former lecture.* I now resume the subject, in the hope of showing that the disturbance of this condition may be one of the causes of inflammation.

To test the influence of the nervous force in engendering the inflammatory process, we must not, as is commonly done, take cases of the effects of external injury. Such an injury, or the presence of a foreign body, is supposed to excite inflammation by stimulating the nerves of the part, and by changing, through their influence, the state or action of the blood-vessels. This may be true; but we should remember that when a common injury is inflicted, it acts not only on the nerves of the part, but also on its proper tissues; and it may so affect the state of these tissues, that the changes produced in them may be the excitant of inflammation, independent of the affection of the nerves. All such cases as these are, thus, ambiguous. For a better test, we must select cases in which the excitant of inflammation acts (at least in the first instance) on the nervous system alone. Such cases are those already referred to. When the conjunctiva is inflamed, after overworking of the eye, we cannot suppose that the light, by its direct contact, has affected the vessels, or the nutritive act, in the conjunctiva: it can, probably, affect either of these only through an influence reflected from the retina. So, when irritation of the urethra excites inflammation in the testicle; when the irritation of teething excites it in any distant part; when, as in a case quoted from Lallemand, by Dr. Williams, inflammation of the brain followed

* Lecture i, p. 12.

the application of a ligature to part of the brachial plexus; in these and the like cases—such as I mentioned in the first lecture,—we cannot but refer to the disturbance of the nervous force as the initiator of the phenomena of inflammation.

Now, for the explanation of such cases as these, there appear to be two chief theories—1. It may be that the nerves distributed to the minute blood-vessels of a part may be so affected that these vessels may dilate, and their dilatation may produce the other phenomena of inflammation; or, 2. The disturbance of the nervous force may more directly interfere with the process of nutrition, inasmuch as this force exercises always some influence in the nutrition of each part, and is (as one may say) one among the plasturgic forces.

The first of these theories has lately acquired a dominant place in systems of pathology, especially in those of Germany. The principal form of it, which has been maintained most prominently by Henle, has enlisted the approval of even Rokitansky, and is largely received, professing to explain all inflammations, and passing by the name of "neuro-pathological," to distinguish it from the "humoral" and all other theories of inflammation. This theory may be thus briefly stated. The exciting cause of inflammation, whether an external cause, such as an injury of a part, or an internal one, such as diseased blood, acts, in the first instance, on the sensitive centripetal or afferent nerves of the part. These it affects as a stimulant, producing in them an excited state, which state, being conveyed to some nervous centre, is thence reflected on the centrifugal or motor nerves of the blood-vessels of the same or some other related part. This reflection, however, is supposed to bring about a kind of antagonistic sympathy, such that, instead of exciting the motor forces of the blood-vessels to make them contract, it paralyses them, and is followed by their dilatation or relaxation. This dilatation being established, the exudation, and other phenomena of inflammation, are assumed to follow as natural, and most of them as mechanical, consequences.

The eminence of those who have supported this hypothesis makes one hesitate in rejecting it; and yet I cannot help believing it to be groundless. If we remember that parts may present some of the phenomena of inflammation, though they have no nerves, as the firmest tendons and articular cartilages; that the degress of inflammation in parts bear no proportion to the amounts of pain in them when inflamed; that the severest pains may endure for very long periods with only trivial, if any, phenomena of inflammation; that the phenomena of the so-called reflex paralysis are rare, equivocal, and altogether insufficient for the foundation of a law or general principle; we may well think that there can be no sufficient ground for the invention of such an hypothesis as this. And, if we add that, even admitting the dilatation of blood-vessels as a possible consequence of the stimulus of sensitive nerves, yet the phenomena of even simple inflammation would be no necessary consequences thereof; that the varieties of inflammations would be quite unintelligible as results of similar mechanical disturbances of the circulation; and that the dilatation of blood-vessels, in any mechanical way produced, is followed by only feeble imitations of a part of the inflammatory process; then we may think that the hypothesis, if all its postulates be granted, will yet be insufficient for the explanation of the facts.

I believe that, if we would have any clear thoughts respecting the influence of the nerves in initiating inflammations, we must first receive the theory, referred to in the first lecture, that a certain exercise of the nervous force is habitually and directly engaged in the act of normal nutrition. If we admit this, there can be little difficulty in believing that the perturbations of the nervous force may engender the inflammatory mode of nutrition, especially

when we see the normal and inflammatory modes connected through such intermediate instances as the increase of secretions when the nerves of a distant part are stimulated.

Now, that the nervous force has some other influence in normal nutrition than can be explained by referring to it only the government of the size of blood-vessels, we have, I think, ample evidence; and I cannot but wonder at the steadfastness with which some maintain or imply that the nervous force can manifest itself in nothing but impressions on the mind, and muscular contraction-force. So limited a view of the convertibility of nervous force is such an one as the older electricians would have held, had they maintained that the only possible manifestations of electricity were the attractions and repulsions of light bodies, or that the electric force could never be made to appear in the form of magnetism, of chemical action, or of heat. We are too much shackled with these narrow dogmas of negation. The evidence of the correlation and mutual convertibility of the physical forces might lead us to anticipate a like variety of modes of manifestation for the nervous and other forces exercised in the living body.* We might anticipate, too, that as the nervous force has its origin in the acts of nutrition by which the nerve-substance is formed, so, by reciprocal action, its exercise might affect the nutritive acts. As (for illustration sake) the completed blood affects all the processes by which itself was formed, so, we might suppose, would the nervous force be able to affect all the acts of which itself is the highest product.

But we need not be content with these suppositions of the direct influence of the nervous force on the nutritive act, while we remember such facts as these. The mind can affect all nutrition, but it can do so only by affecting, in the first instance, the nervous force; and its effects are such changes of nutrition as cannot be referred to mere changes of the size of the blood-vessels. Abstraction of the nervous influence from a part by division or other profound injury of its nerves, is, as a general rule, followed by serious impairment of its nutrition, and by such and so various impairments as cannot be accounted for by paralysis of the blood-vessels. The direct influence of the nervous system on both the quantity and the quality of secretions is a fact even commonly noticeable; and secretion and nutrition are so similar processes that we may be sure they are accomplished by the same forces similarly exercised.†

We seem, then, to have sufficient evidence that the nervous force is one of those which (at least in the highest animals) are engaged in the normal act of nutrition; and sufficient evidence that inflammation may ensue in consequence of disturbance of the nervous force, even when that force cannot have acted in the first instance on the blood-vessels of the inflamed part. I think, therefore, the expression is justified, that the inflammation of a part may have its origin in disturbance of the nervous force which is normally exercised in the nutrition of the part, and which is exercised directly, not merely through the government of the contractile coats of the blood-vessels.

The last of the necessary conditions of normal nutrition in a part is the healthy condition of the part itself. If a part be at present diseased, it will be apt to remain so, because of the continuance of the same diseased method of nutrition. Now, it appears highly probable that a disturbance of the

* For the suggestion of this view I have to thank my esteemed friend Dr. Carpenter, by whom I am glad to know that the subject of the correlation of the vital forces will shortly be fully illustrated.

† The subject is more fully illustrated in the Lectures on Nutrition, in the Medical Gazette for 1847.

healthy state of a part may introduce the phenomena of inflammation. This is probable for many reasons; as, first, from analogy with normal nutrition. Generally, the principal conditions of nutrition are the relative and mutual influences of the elements of the tissues and the blood. More particularly, the condition of the tissues determines, at least in great measure, both the quantity and the rate of movement of the blood supplied to them, the changes of the tissues, whether in growth or decrease, just preceding the adapted changes in the supply of blood. So we may believe a change in a part anyhow engendered may, by altering its relation to the blood, alter its mode of nutrition; and some of the changes may produce the inflammatory mode of nutrition, together with the altered supply of blood, and other characteristic signs.

Secondly, we may judge the same from the analogy between inflammation and the process of repair. Certainly it is the state of the injured part—*i. e.*, of its proper tissues, not of its nerves and blood-vessels—which determines the process of repair; and some of the processes of repair are so like those of inflammation, that they are commonly identified, and are, perhaps, not capable of even a refined distinction.

And thirdly, the influence of the condition of the proper tissues of a part in initiating inflammation in it, is illustrated by more direct facts; such as, that injuries of parts that have no vessels or nerves are followed by altered modes of nutrition in them, these modes being more or less exact resemblances of inflammation. Thus, *e. g.*, it is in the cornea, lens, vitreous humour, and the like, after injury.

On the whole, I think we may conclude that inflammation may have its origin in disturbance of the normal condition of the proper tissues of a part—in such a disturbance as may be produced by injury, or by the proximity of disease. To this source, indeed, I should be disposed to refer nearly all inflammations that originate in the direct application of local stimuli, whether mechanical or chemical. It is true that, in most cases, the stimulus affects at once the proper elements of the part, its nerves and its blood-vessels, so that we cannot say how much of the disease is to be ascribed to the affection of each; but the fact that a process resembling, so far as it goes, that of inflammation may ensue after injury in parts that have neither vessels nor nerves, may make one believe that in parts that have both the inflammation depends mainly on injury or other affection of the proper tissue.

BOOKS RECEIVED.

1. Diseases of the Breast, and their Treatment. By John Birkett, F.R.C.S. 8vo, p. 264.
2. Nature and Cure of Consumption, Indigestion, and Scrofula. By G.Calvert Holland, M.D. 8vo.
3. The Bath Waters, their Uses, and Effects. By James Tunstall, M.D. 12mo.

*** *An efficient guide, written by one who, from his opportunities of observation, is likely to be a trustworthy teacher.*

4. The Management of Infancy, with Remarks on Diet. By Charles Hogg, M.R.C.S.
5. Animal Chemistry, in its Application to Stomach and Urinary Diseases. By H. Bence Jones, M.D., Cantab. p. 138.
6. Principles of Surgery. By James Miller, F.R.C.S.E. 2d edit., p. 802.
7. Deafness Practically Illustrated. By James Yearsley, M.R.C.S.E. 3d edit., p. 244.
8. Anatomy, Physiology, and Pathology of the Eye. By Henry Howard, M.R.C.S., p. 517.
9. Fatty Diseases of the Heart. By Richard Quain, M.D. (Reprint.)
10. Treatment of Febrile and other Diseases of the Skin. By William Taylor, M.R.C.S., &c.
11. Corpulence or Excess of Fat on the Human Body, its relations to Chemistry, &c. By Thomas L. Chambers, M.D., p. 168.
12. Practical Treatise on the Use of Terebinthinal Medicines. By Thomas Smith, M.D. p. 185.
13. Hydrocephalus Reconsidered. By Thomas Weedon Cooke, M.R.S.C. p. 111.
14. Operative Surgery. By Fred. Skey, Esq., F.R.S. p. 734.
15. The Chrystaline Lens and Cataract. By B. E. Brodhurst.

PAMPHLETS AND REPRINTS.

1. Observations on Chronic Hydrocephalus. By Francis Battersby, M.D.
2. Report of the General Board of Health on Epidemic Cholera, of 1848-9. Appendix A—B.
3. Remarks on the Nature of Insanity, and its Treatment. By Henry Munro, M.B., Oxon. Part I.
4. On the Identity or Non-identity of Typhus and Typhoid Fever. By W. Jenner, M.D.
5. On Abnormal Nutrition in Articular Cartilages. By P. Redfern, M.D.
6. Reports on Cholera in the West Yorkshire Lunatic Asylum. By Dr. T. Wright.
7. On the Containing Texture of the Blood. By W. Addison, M.D., F.R.S.
8. Address before the American Medical Association.
9. Influence of Physical Agents on the Development of the Tadpole. By John Higginbotham, F.R.C.S. (From the Philosophical Transactions.)

*** *A careful and conclusive essay.*

BIBLIOGRAPHICAL RECORD.

WHEN NOT OTHERWISE STATED, ALL BOOKS PUBLISHED IN LONDON.

1. On Stammering and its Treatment. By a Bachelor of Medicine, Oxford. 2s. 6d.

2. Lemale's Diary and Almanack for 1850, especially arranged for the Appointments of Surgeon-Dentists, and classing under different heads the separate branches of the profession. 5s. 6d.

3. The Composition of Hydrogen and Non-Decomposition of Water Demonstrated. Also the Absurdity of the Present Theories of Electricity and Magnetism shown, and the True Ones given. By W. F. Stevenson, Esq., F.R.S. 3s. 6d.

4. Sanitary Economics; or, our Medical Charities as they are and as they ought to be. By Alexander P. Stewart, M.D., Physician to the St. Pancras Royal Dispensary. 1s.

5. On the Operation for Strangulated Hernia. By Henry Hancock, F.R.C.S.E., Surgeon and Lecturer on Surgery, Charing Cross Hospital. 1s.

6. The First Medical Report of the Hospital for Consumption and Diseases of the Chest, by the Physicians of the Institution, including Statistical and other Observations on the Origin, Progress, Symptoms, and Treatment of Consumptive Disease. 2s.

7. Contributions to Mental Pathology, with Introductory Observations, containing the past and present state of the Insane in Ceylon, &c. By James George Davey, M.R.C.S.; Licentiate of the Royal College of Physicians, formerly one of the Resident Surgeons of the Hanwell Asylum; and lately of the Ceylon Medical Service. 6d.

8. On the Nature and Treatment of Diseases of the Kidney connected with Albuminous Urine, (Morbus Brightii.) By G. Owen Rees, M.D. F.R.S. Assistant-Physician to, and Lecturer on Materia Medica at, Guy's Hospital; Physician to the Pentonville Prison. 5s.

9. The Pathology of the Kidney in Scarlatina. By James Miller, M.D., Physician to the Western General Dispensary, Lisson-grove. 7s.

10. Annals of Anatomy and Physiology. Conducted by John Goodsir, F.R.SS.L. & E., Professor of Anatomy in the University of Edinburgh. 3s. 6d.

11. A Safe and Successful Method of Treating Secondary, Constitutional, and Confirmed Syphilis; with numerous Cases, illustrating its Efficacy in the most Obstinate and Complicated Forms of that Disease. By Langston Parker, F.R.C.S., Surgeon to the Queen's Hospital, Birmingham. 5s.

12. A Paper on Epilepsy, being an Answer to the Question—What is the Nature of the Internal Commotion which takes place during an Epileptic Paroxysm? By John Jackson, M.R.C.S.E. 8s.

13. Of the Causes, Nature, and Treatment of Palsy and Apoplexy: Of the Forms, Seats, Complications, and Morbid Relations of Paralytic and Apoplectic Diseases. By James Copland, M.D., F.R.S., Fellow of the Royal College of Physicians, &c.; author of 'A Dictionary of Practical Medicine.' 9s.

14. On the Analysis and Treatment of Urinary Diseases. By G. Owen Rees, M.D., F.R.S, Fellow of the Royal College of Physicians, Principal Medical Officer to Pentonville Prison, and Assistant Physician to Guy's Hospital. 2d edition, enlarged. 7s. 6d.

15. Temperance and Total Abstinence, or the Use and Abuse of Alcoholic Liquors in Health and Disease. By S. Thomson, M.D. Being the Second Essay of the Temperance Prize, and recommended for publication by the adjudicators. 2s. 6d.

16. A Practical Hand-Book of Medical Chemistry. With numerous illustrations on wood. By John E. Bowman, Demonstrator of Chemistry in King's College.

17. A Few Words on Perinæal Section, as recommended by Professor Syme, for the Cure of Stricture of the Urethra, and on Mr. Wade's recent Remarks thereon. By F. B. Courtenay, M.R.C.S.E. 1s.

18. A Physician's Holiday, or a Month in Switzerland in the summer of 1848. By John Forbes, M.D., F.R.S. 8s. 6d.

19. Health, Disease, and Remedy, familiarly and practically considered in relation to the blood. By George Moore, M.D., Member of the Royal College of Physicians, &c.: Author of 'The Power of the Soul over the Body,' &c. 7s. 6d.

20. An Inquiry how far Consumption is Curable; with Observations on the Treatment, and on the Use of Cod-Liver Oil, and other Remedies. By James

Turnbull, M.D., Physician to the Liverpool Infirmary, &c. 4s.

21. The Unity of Nature. By Charles Bland Radcliffe, M.B., Licentiate of the Royal College of Physicians. 6s.

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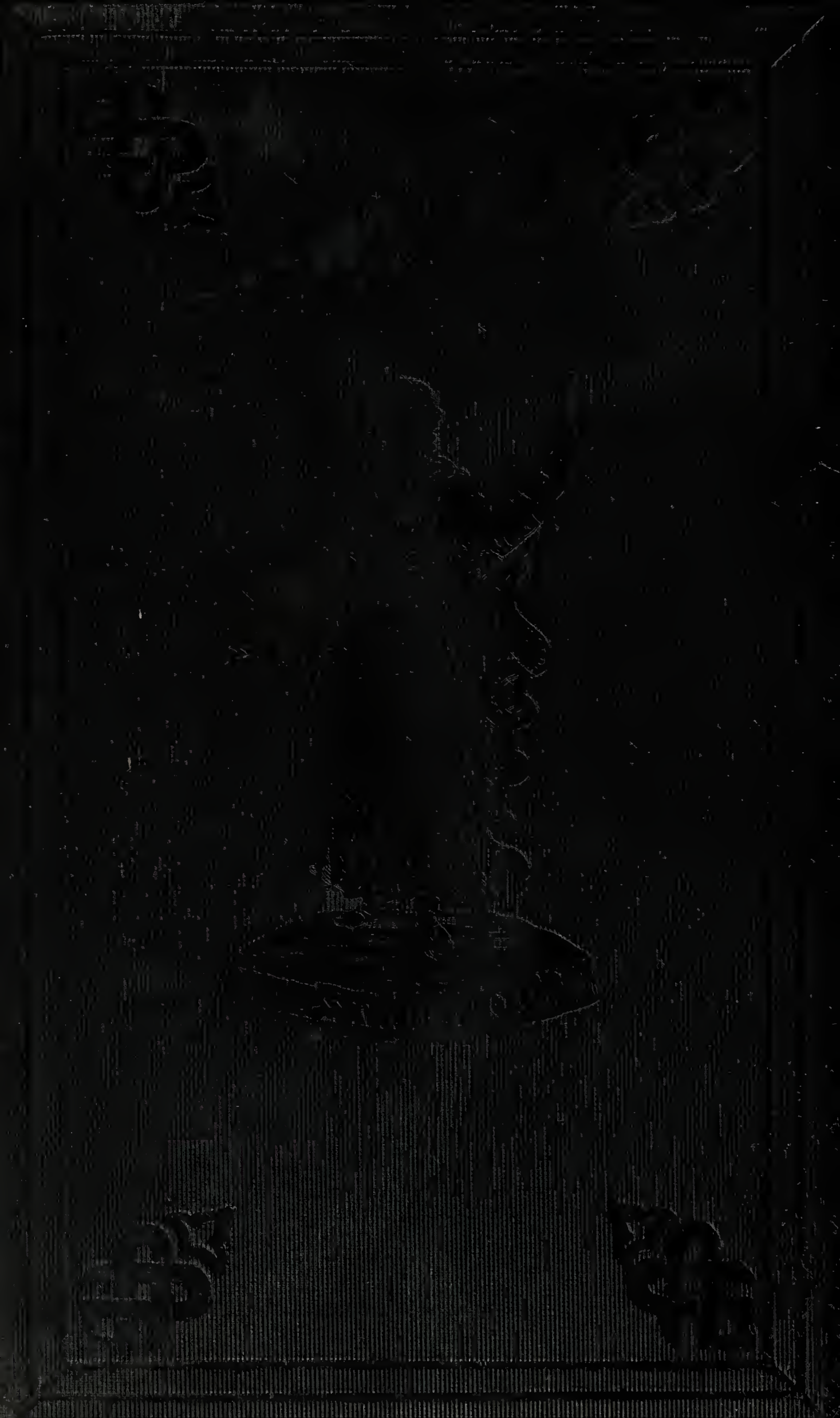
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